CDX-5B816/XM-5B816/XR-5B816

SERVICE MANUAL

West Germany Model

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SONY®

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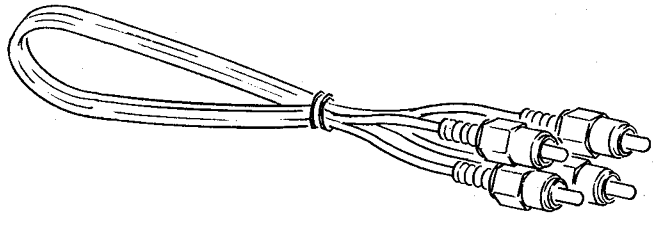
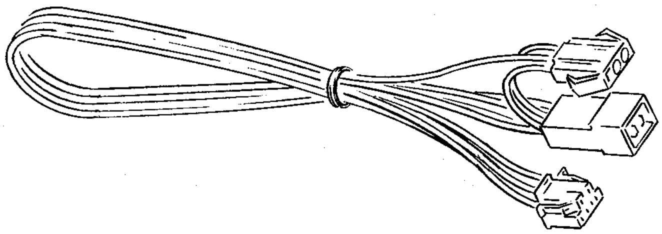
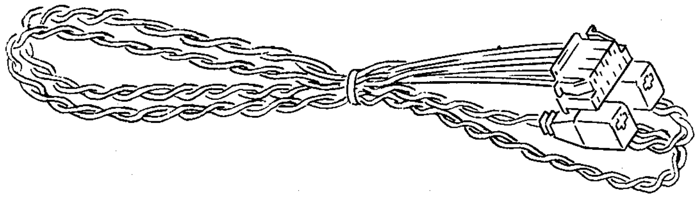


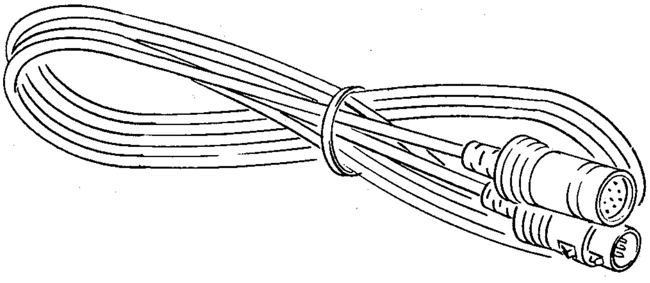
RC-5B816XR
Part No. 1-556-167-21
XR-5B816 to XM-5B816



RC-5B816XM
Part No. 1-574-054-11
XM-5B816 to power supply



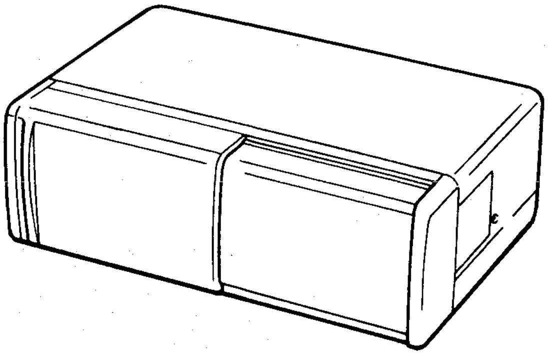
RC-5B816SP
Part No. 1-574-053-11
XM-5B816 to speakers



RC-5B816CD
Part No. 1-559-438-31
XR-5B816 to CDX-5B816

COMPACT DISC PLAYER
[CDX-5B816]

West Germany
Model



SPECIFICATIONS

System
  Compact disc digital audio system
Laser diode properties
  Material: GaAlAs
  Wavelength: 780 nm
  Emission duration: Continuous
  Laser output power: Less than 44.6 μW*
  * This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.
Spindle speed
  200 r.p.m. to 500 r.p.m. (CLV)
Error correction
  Sony Super Strategy Cross
  Interleave Reed Solomon Code
Number of channels
  2
D-A conversion
  16-bit linear
Frequency response
  5–20,000 Hz ±1 dB
Dynamic range
  85 dB
Signal-to-noise ratio
  85 dB
Wow and flutter
  Below measurable limit
Outputs
  Line output (for changer connector only)

General
Power requirements
  12 V DC car battery (negative ground)
Current drain
  800 mA (CD playback)
  800 mA (during disc loading or eject)
Operating temperature
  − 10°C - 55°C (14°F - 131°F)
Mounting dimensions
  Approx. 301 × 98 × 200 mm (w/h/d)
  ($11\frac{7}{8} \times 3\frac{7}{8} \times 7\frac{7}{8}$ in.)
  not incl. projecting parts and controls
Weight
  Approx. 3 kg (6 lb 10 oz)
Supplied accessories
  Disc magazine (1)
  Mounting hardware (1 set)
  Extension cord (1)

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

FEATURES

- **Mobile CD auto changer** automatically changes the discs in the disc magazine and enables you to play the desired selections of the 10 discs in any desired sequence.
- **Compact and space-saving** for either vertical or horizontal installation in the car.
- The connected equipment enables you to operate the changer in the car.

PRECAUTIONS

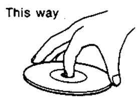
- This unit is designed for **negative ground 12 V DC** operation only.
- Avoid installing the unit in a place:
  - —subject to temperatures exceeding 55°C (131°F) (such as in a car parked in direct sunlight)
  - —subject to direct sunlight
  - —near heat sources (such as heaters)
  - —exposed to rain or moisture
  - —exposed to excessive dust or dirt
  - —subject to excessive vibration
- When transporting the unit, keep the unit horizontal.

On moisture condensation

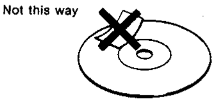
On a rainy day or in a very damp area, moisture may condense on the lenses inside the unit. Should this occur, the unit will not operate. In this case, **remove the disc and wait for about an hour until the moisture evaporates.**

NOTES ON COMPACT DISCS

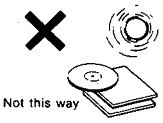
Handle disc by its edge, and to keep the disc clean, do not touch the surface without label.



Do not stick paper or tape on the labeled surface.

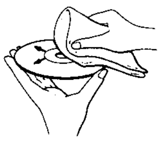


Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in the direct sunlight where there can be a considerable rise in the temperautre.



Before playing, clean the disc with an optional cleaning cloth. Wipe the disc in the direction of the arrows.

Do not use solvents such as benzine, thinner, commercially available cleaners or antistatic spary intended for analog discs.



NOTES ON DISC MAGAZINE

- Do not leave the magazine in high-temperature, high-humidity locations, such as on a car dashboard or at the rear window where the magazine will be subjected to direct sunlight.
- Do not insert more than one disc into one slot, otherwise the player and the discs will be damaged.
- Do not drop the magazine or subject it to violent shock.
- When the magazine is not in use, store it in its protective case.

◆ ◆ ◆

SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

LASER ADVARSEL MÆRKNING

Følgende mærkning findes indvendig i apparatet:

1. Advarsel Mærkning

CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING.

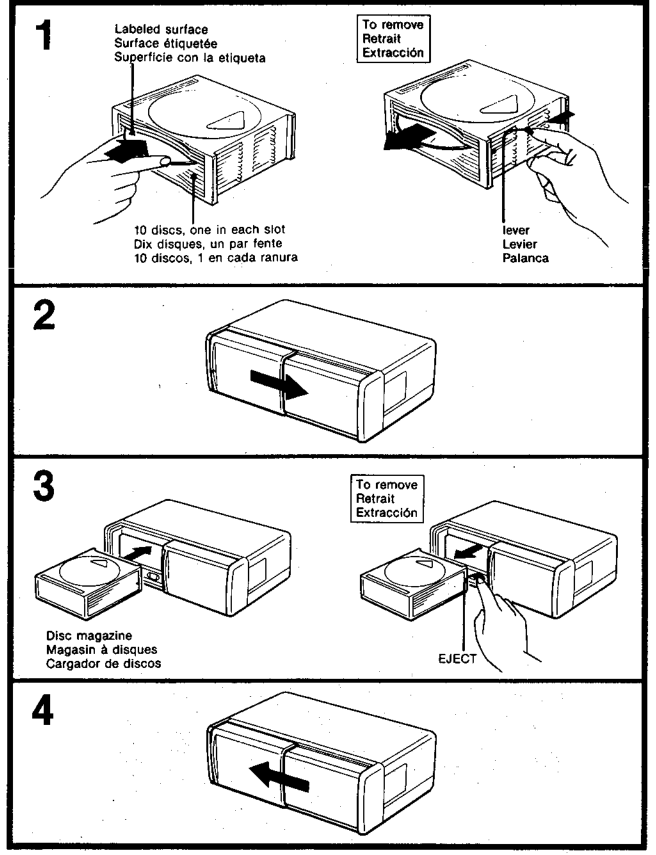
4 885 843 02

Laser-didoe data

- Materiale: GaAlAs
- Bølgelængde: 780 nm
- Udstråling: Kontinuerlig
- Laseroutput: Max. 0,4 mW*
  - * Målt i 1,6 mm afstand fra overfladen af objektiv-linsen pa den optiske pick-up enhed.
- Klassifikation: Klasse IIIb.

VAROITUS: Laite sisältää, laserdiodin, joka lähettää (näkymätöntä) silmille vaarallista lasersateilyä.

PREPARATIONS
PREPARATIFS
PREPARATIVOS



Use the unit with the door closed
Otherwise, foreign matter may enter the unit, and contaminate the lens in the player.

Utiliser cet appareil avec la porte fermée
Si cela n'est pas fait, des matières étrangères peuvent entrer dans l'appareil et contaminer l'objectif du lecteur.

Emplee la unidad con la puerta cerrada
De lo contrario, podrían introducirse materias extrañas y contaminar el objetivo del reproductor.

INSTALLATION
INSTALLATION
INSTALACIÓN

PRECAUTIONS

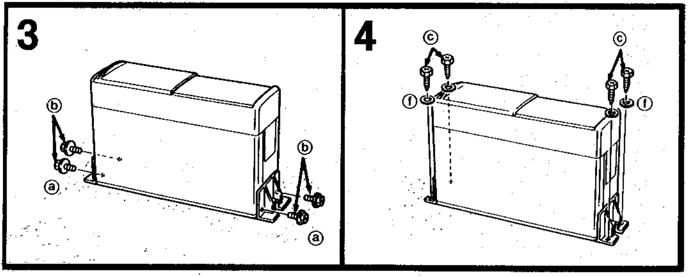
- Choose the mounting location carefully, observing the following:
  - —The fuel tank should not be damaged by the tapping screws.
  - —There should be no wire harnesses nor pipelines under the place where you are going to install the unit.
  - —The spare tire, tools or other equipment in or under the trunk should not be interfered with nor damaged by the screws or the unit itself.
- Be sure to use only the supplied mounting hardware for a safe and secure installation.

PRECAUTIONS

- Choisir soigneusement l'endroit de montage en observant ce qui suit.
  - —Le réservoir d'essence ne doit pas être endommagé par les vis taraudeuses.
  - —Il ne doit pas y avoir de faisceau de fils ou de tuyaux sous l'endroit où l'on désire installer l'appareil.
  - —La roue de secours, les outils ou autre équipement dans ou sous le coffre ne doivent pas être gênés ni endommagés par les vis ou l'appareil lui-même.
- S'assurer d'utiliser uniquement le matériel de montage fourni pour une installation correcte et sûre.

PRECAUCIONES

- Elija cuidadosamente el lugar de montaje, teniendo en cuenta lo siguiente:
  - —El depósito de combustible no deberá dañarse con los tornillos roscachapa.
  - —No deberá haber mazos de conductores ni tubos debajo del lugar donde vaya a instalar la unidad.
  - —La rueda de repuesto, las herramientas, u otros equipos situados dentro o debajo del portaequipajes no deberán verse interferidos ni dañados por los tornillos ni por la propia unidad.
- Para realizar una instalación segura, emplee solamente la ferretería de montaje suministrada.



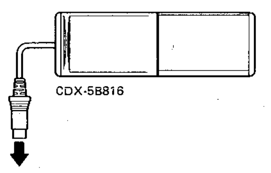
If the installation is not secure, sound skipping may occur. For secure installation, proceed the Mounting diagram 2.
Si l'installation n'est pas correcte, des sautes de son peuvent se produire. Pour une installation sûre, procéder comme sur le montage 2.
Si la instalación no es segura, es posible que se produzcan saltos de sonido. Para la instalación segura, siga el Diagrama de montaje 2.

CONNECTIONS
CONNEXIONS
CONEXIONES

Caution
Before making connections, disconnect the ground wire terminal of the car battery to avoid short circuits.

Attention
Avant d'effectuer les connexions, déconnecter le fil de masse de la batterie de voiture pour éviter un court-circuit.

Precaución
Antes de realizar las conexiones, desconecte el terminal del conductor de puesta a carrocería de la batería del automóvil para evitar cortocircuitos.



to a Sony car stereo system which has the appropriate connector for CDX-5B816

A un autostéréo Sony possèdant le connecteur approprié pour le CDX-5B816

a un sistema estéreo para automóvil Sony que disponga del conector apropiado para el CDX-5B816

For details, refer to the installation/connection manual of each product.

Pour plus de détails, se reporter au mode d'emploi pour l'installation/connexion de chaque produit.

Con respecto a los detalles, consulte el manual de instalación/conexión de cada producto.

SECTION 1
MECHANICAL ADJUSTMENTS

[LARGE ELEVATOR GEAR POSITION (LOCATION 10.5) ADJUSTMENT]

1. Move the middle elevator gear in the arrowed direction and place the top plate at the position where there are no clearances between the bottom face of the top plate and the top edges of the three claws.

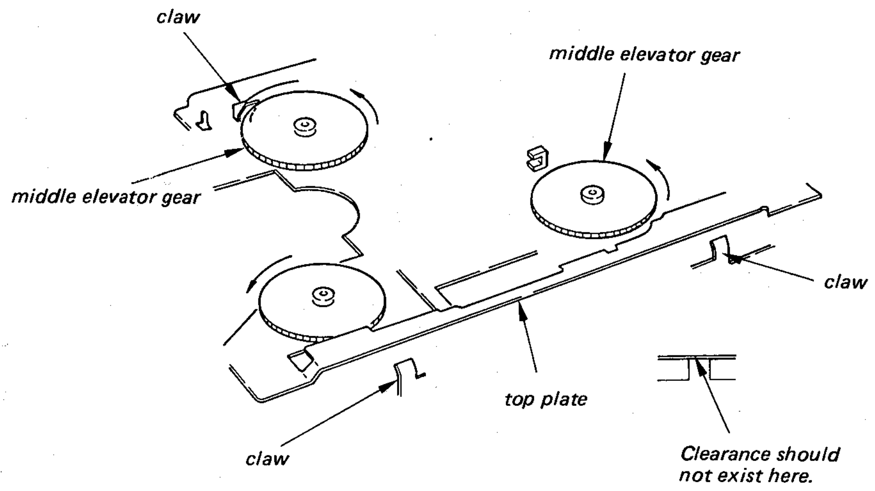
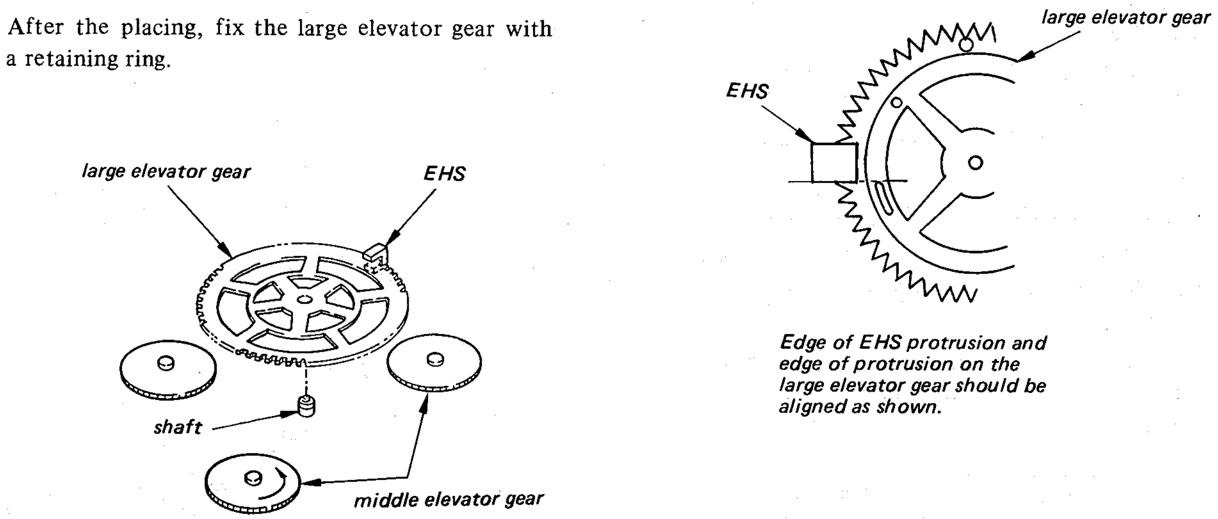


Fig. 1

2. Put the large elevator gear on the shaft of the top plate taking care not to move the middle elevator gears. The large elevator gear should be fastened by the top plate and EHS protrusion and should position in the relationship with the EHS as shown in Fig. 1.
3. After the placing, fix the large elevator gear with a retaining ring.



Edge of EHS protrusion and edge of protrusion on the large elevator gear should be aligned as shown.

Fig. 2

[HOMING ADJUSTMENT]

Note: 1. The mechanism section should be completely assembled.
2. Control the mechanism with the main unit XR-5B816.

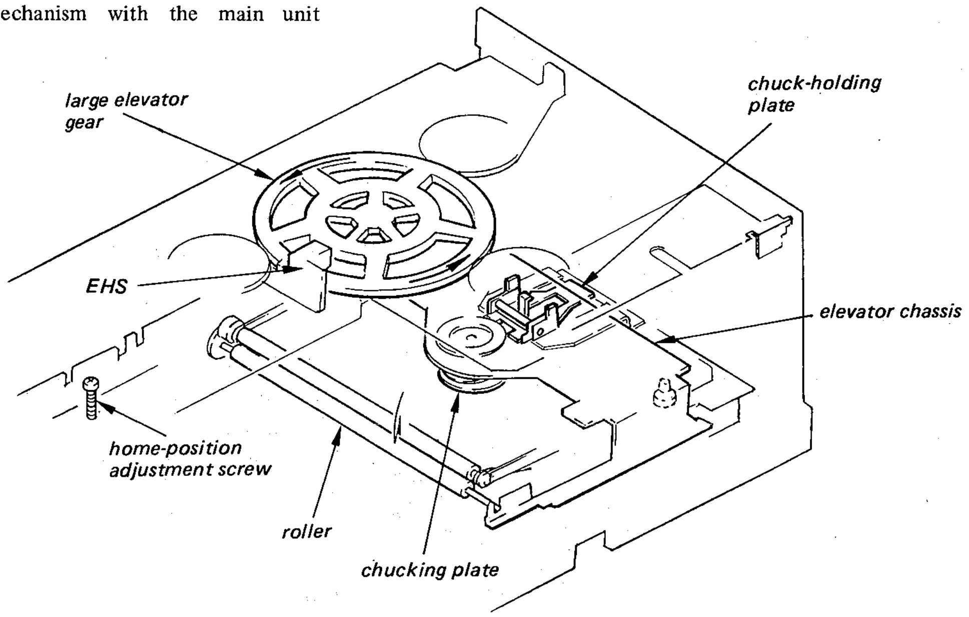

large elevator gear
chuck-holding plate
EHS
elevator chassis
home-position adjustment screw
roller
chucking plate

Fig. 3

1. Put the disk magazine containing several discs in the changer.
2. Initialize the changer.
3. Pull off the first disc.
4. Wait until the elevator lowers down to the home position.
5. Move the large elevator gear so that the clearance between the inner edge face of the chucking plate and edge of the top face of the stainless chuck-holding plate becomes in 1.5 mm (1/16 inches) as shown in Fig. 4.
6. Make a dot marking on the large elevator gear as shown in Fig. 5.
7. Re-put the first disc in the disc magazine.
8. Pull off the first disc again. The dot marking made in the step 6 above should position as shown in Fig. 5.
9. Fine adjust the position of the large elevator gear with the home-position adjustment screw shown in Fig. 3.

Adjustment Screw Position	Large Elevator Gear Position Displacement
One (1) turn in clockwise	15 (fifteen) degrees clockwise
One (1) turn in counterclockwise	15 (fifteen) degrees counterclockwise

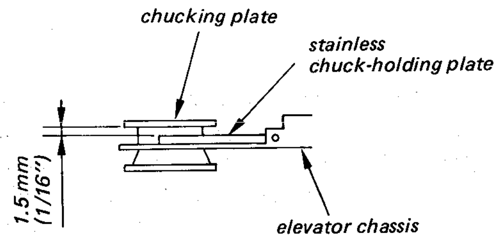
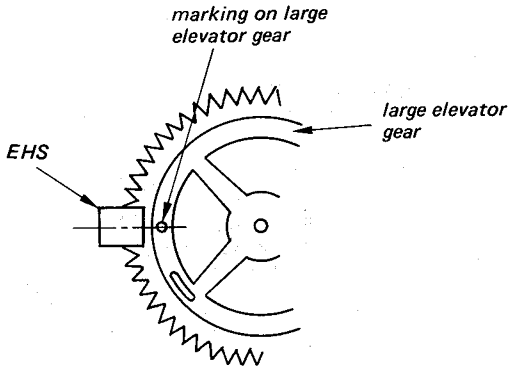

chucking plate
stainless chuck-holding plate
1.5 mm (1/16")
elevator chassis

Fig. 4


marking on large elevator gear
large elevator gear
EHS

Note:
Make a marking near and on the center line of the EHS sensor.

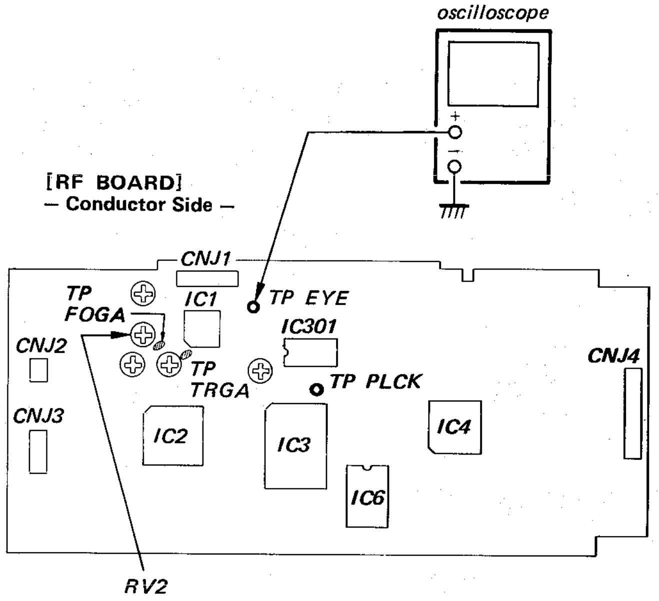
Fig. 5

SECTION 2
ELECTRICAL ADJUSTMENTS

1. Perform adjustments as given.
2. Be sure to use the disc "YEDS-18" parts code: 3-702-101-01, but only when indicated.
3. Unsolder the small shield plate from the RF board.
4. Power supply voltage: DC 14.4 V (more than 2A).

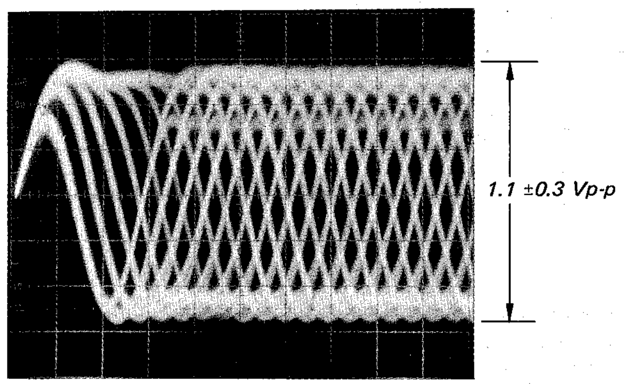
1. Focus Offset Adjustment

Procedure:


oscilloscope
+
−
[RF BOARD]
— Conductor Side —
CNJ1
TP FOGA
IC1
TP EYE
IC301
CNJ2
TP TRGA
TP PLCK
CNJ4
CNJ3
IC2
IC3
IC4
IC6
RV2

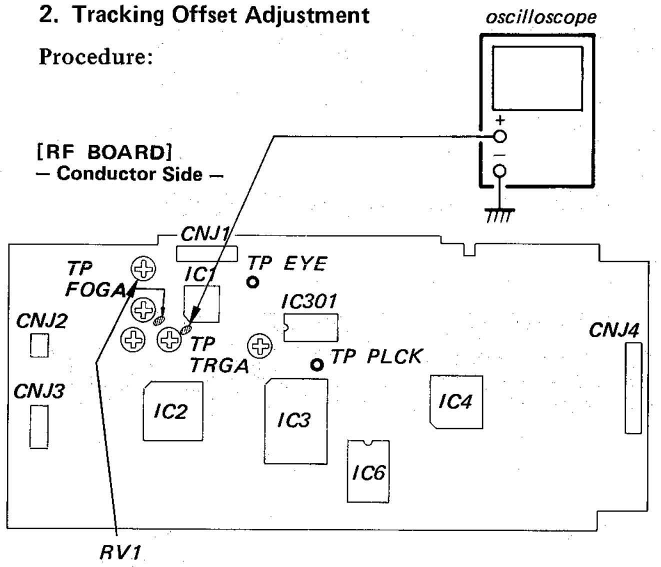
1. Connect the oscilloscope to RF board test point $\boxed{\text{EYE}}$.
2. Put the set into play mode by loading the disc.
3. Adjust main board RV2 so that the oscilloscope waveform eye pattern is good.
   A good eye pattern means that the diamond shape (◇) in the center of the oscilloscope can be clearly distinguished.

Volt/Div: 200 mV
Time/Div: 0.5 μSec



2. Tracking Offset Adjustment

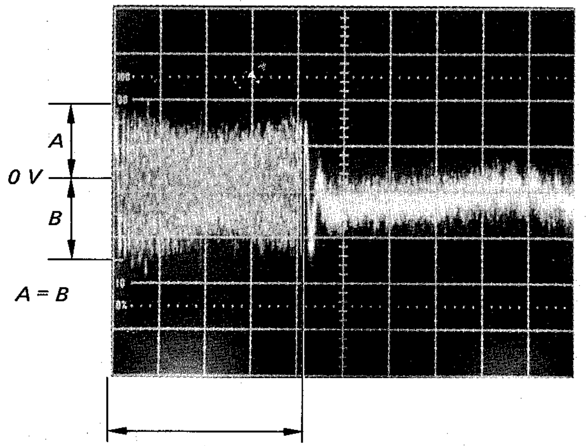
Procedure:


oscilloscope
+
−
[RF BOARD]
— Conductor Side —
CNJ1
TP FOGA
IC1
TP EYE
IC301
CNJ2
TP TRGA
TP PLCK
CNJ4
CNJ3
IC2
IC3
IC4
IC6
RV1

1. Connect the oscilloscope to RF board test point $\boxed{\text{TRGA}}$, pin ① of IC1.
2. Put the set into play mode by loading the disc.
3. Press the |◀◀ or ▶▶| (or ◀◀, ▶▶) button, then check the traverse waveform*.
4. Adjust RV1 (main board) so that oscilloscope reading is symmetrical in relation to 0 V.

*Traverse waveform: This is the tracking error waveform appears when crossing the track.

Volt/Div: 0.5 V
Time Div: 2 mSec
Center 0 V



traverse wafeform
(100 track jump waveform)

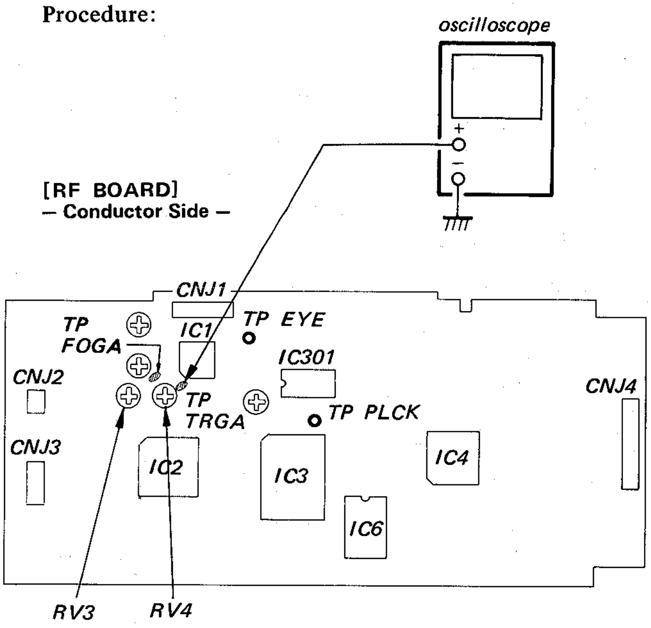
3. Tracking Gain Adjustment (coarse adjustment)

This adjustment is to be performed when replacing the following parts.

- Optical Pick-up Block
- RV4

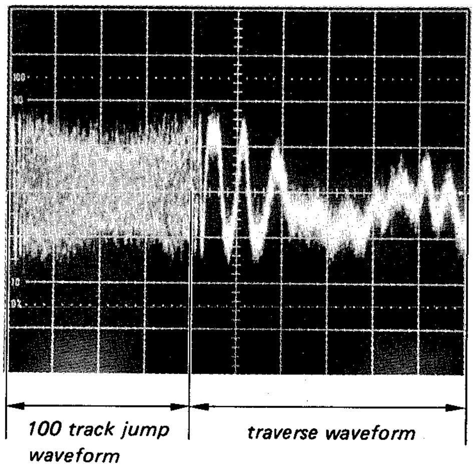
This adjustment should be performed after focus offset and tracking offset adjustments are completed.

Procedure:

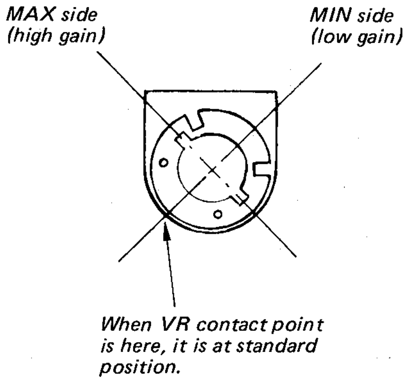

oscilloscope
+
−
[RF BOARD]
— Conductor Side —
CNJ1
TP FOGA
IC1
TP EYE
IC301
CNJ2
TP TRGA
TP PLCK
CNJ4
CNJ3
IC2
IC3
IC4
IC6
RV3
RV4

1. Connect the oscilloscope to RF board test point TRGA.
2. Put the set into play mode by loading the disc.
3. Turn RF board RV4 from clockwise stop, then check the oscilloscope waveform.
   Fix RV4 at the position where the waveform disappears.

- **When gain is lowered . . .**
  When selecting by pressing |◀◀ or ▶▶| button, brake application is poor because of low tracking gain. Therefore, the traverse waveform appears after the 100 track jump waveform, then the selection will be located slowly.

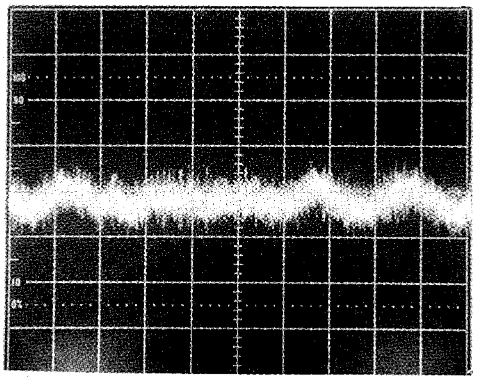


- **When gain is highered . . .**
  Operation noise is heard due to a scratch or dust, then operation will be instability.

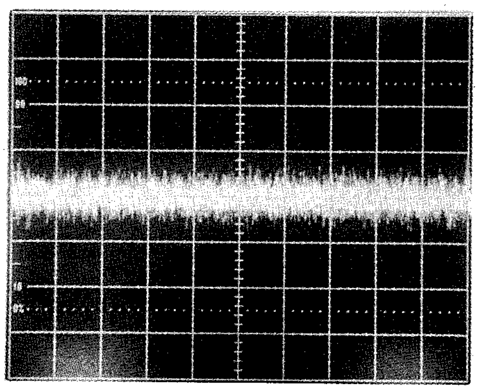

MAX side (high gain)
MIN side (low gain)
When VR contact point is here, it is at standard position.

RV3 standard position

Volt/Div: 0.5 V
Time/Div: 2 mSec



waveform when the wave appears



waveform when the wave disappeared

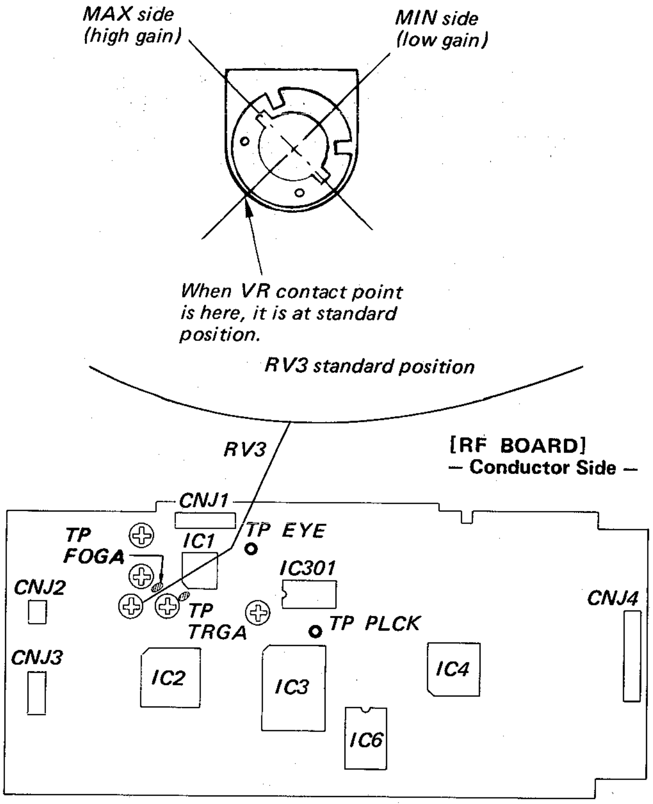
4. Focus Gain Adjustment (coarse adjustment)

This adjustment is to be performed when replacing the following parts.

- Optical Pick-up Block
- RV3

Procedure:

1. Set RV3 (RF board) to the standard position.
2. Check that there is not an abnormal amount of operation noise (white noise) from the 2-axis devise. If there is, turn RV3 slightly clockwise.



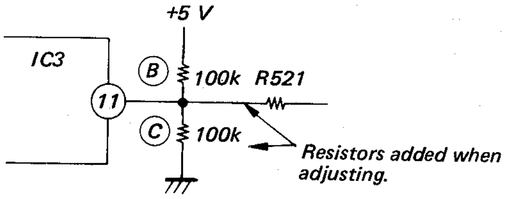
MAX side (high gain)
MIN side (low gain)
When VR contact point is here, it is at standard position.
RV3 standard position
RV3
[RF BOARD] – Conductor Side –
CNJ1
TP FOGA
IC1
TP EYE
IC301
CNJ2
TP TRGA
TP PLCK
CNJ4
CNJ3
IC2
IC3
IC4
IC6

- **When gain is too low. . .**
  The set does not play because of no focus operation.
- **When gain is too high. . .**
  Operation noise is heard due to a scratch or a dust, then operation will be unstable.

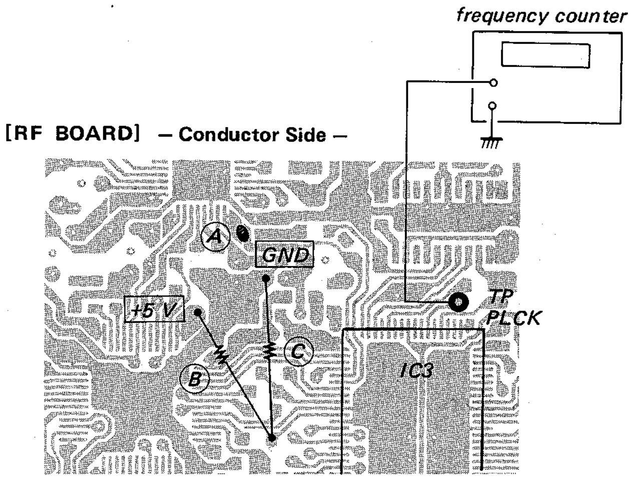
5. PLL Freerun Frequency Adjustment

Procedure:

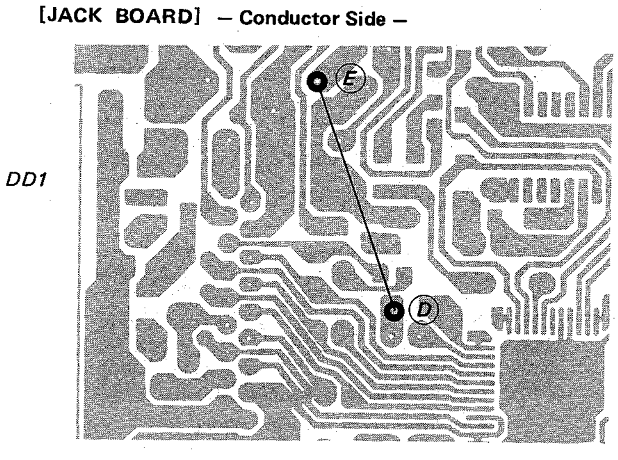
1. Unsolder the solder bridge at Ⓐ.
   (IC3 pin ⑤ is opened)
2. Connect 100 kΩ resistors to Ⓑ, Ⓒ.
   (This is to set the IC3 pin ⑪ voltage to 2.5 V)
3. Install a test jumper wire between Ⓓ and Ⓔ on the jack board to pull up the P/C terminal of the DC-DC converter ⊖.
4. Connect the frequency counter to RF board test point $\boxed{\text{PLCK}}$ (IC3 pin (70)).
5. Turn the power switch on (Do not use the disc), then adjust RV5 so that the frequency is 4.3218 MHz ±10 kHz.
6. After adjusting, reset 1, 2 and 3 as original.



+5 V
IC3
Ⓑ
100k
R521
⑪
Ⓒ
100k
Resistors added when adjusting.



frequency counter
[RF BOARD] – Conductor Side –
Ⓐ
GND
+5 V
TP PLCK
Ⓒ
Ⓑ
IC3



[JACK BOARD] – Conductor Side –
Ⓔ
DD1
Ⓓ

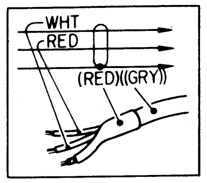
SECTION 3
DIAGRAMS

3-1. RF BOARD MOUNTING DIAGRAM

- **See page 19 – 21 for Schematic Diagram.**
- **See page 22 for Semiconductor Lead Layouts.**

Note:

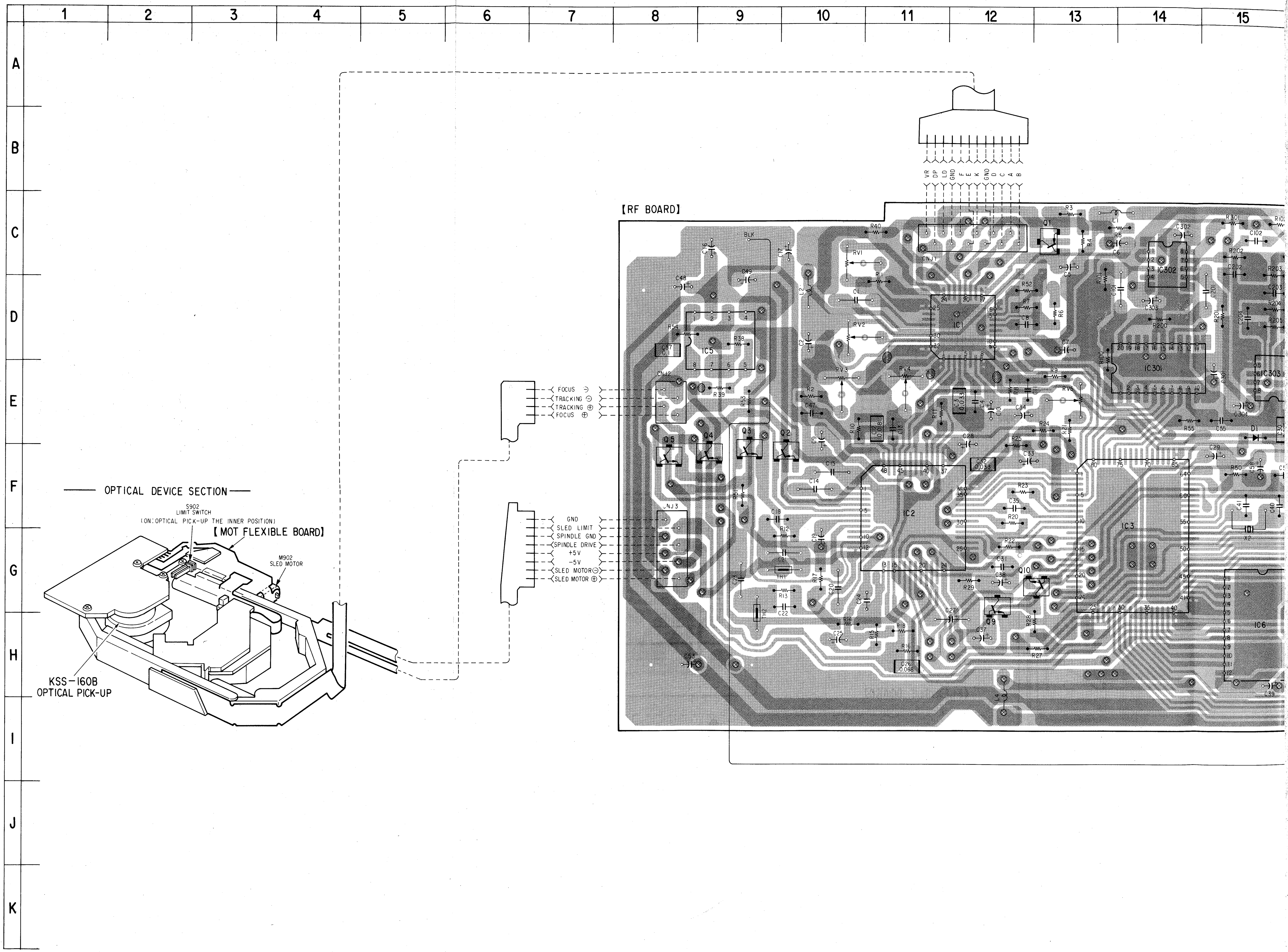
- Color code of sleeving over the end of the jacket.

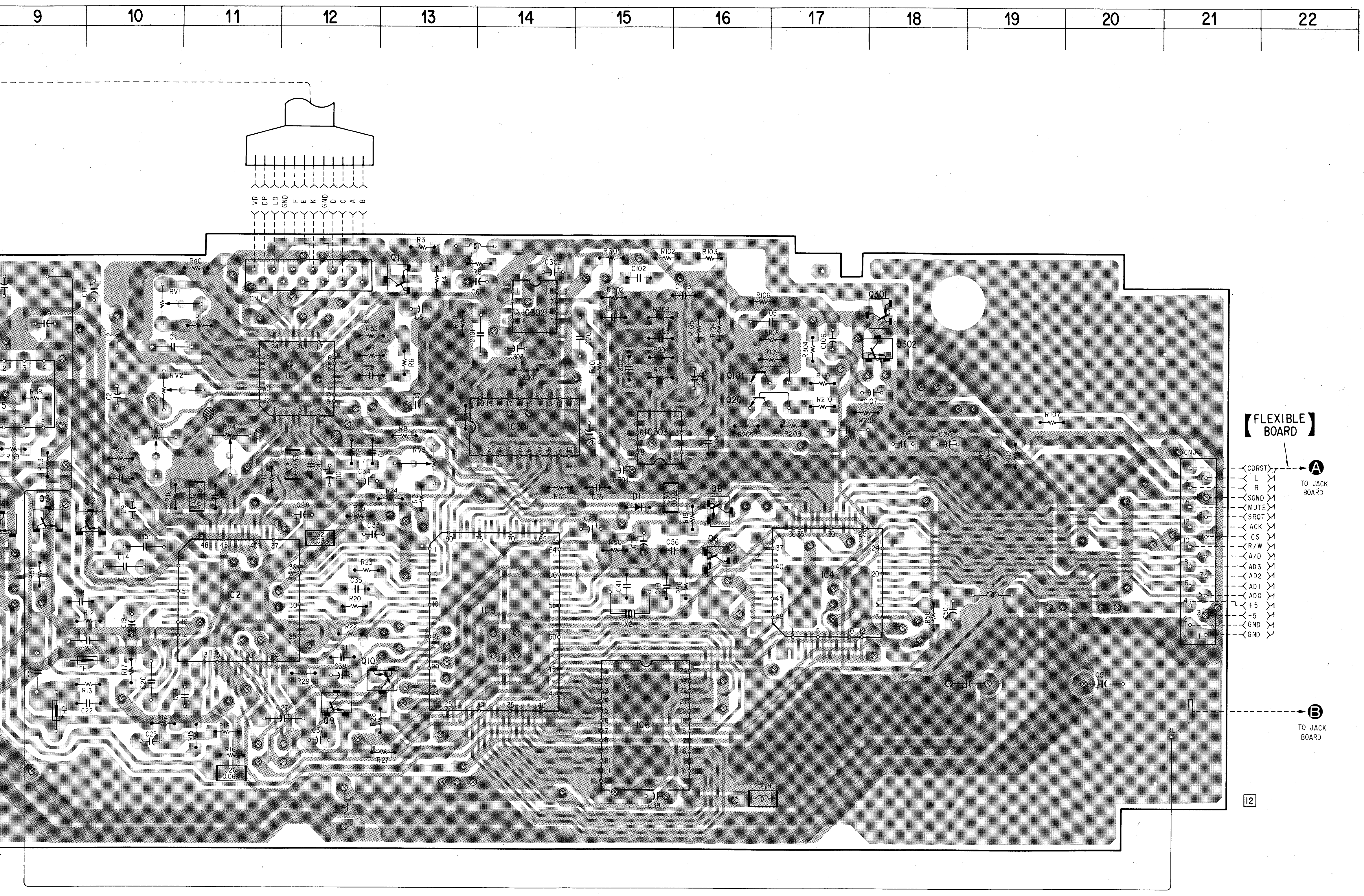

WHT
RED
(RED)((GRY))

- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ⊗ : Through hole.
- ░ : component-side pattern.

• SEMICONDUCTOR LOCATION

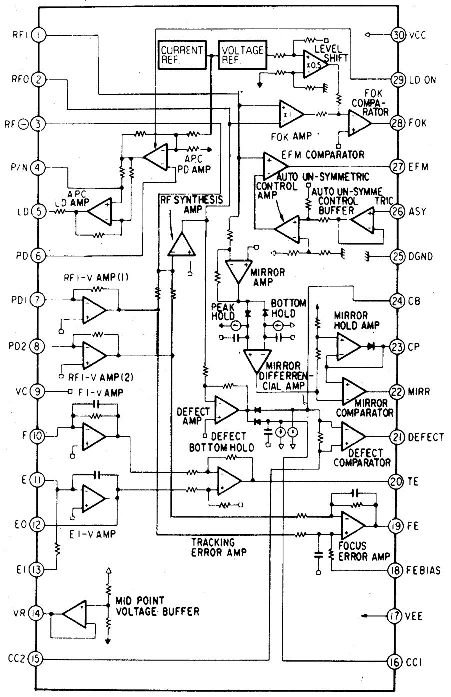
Ref. No.	Location
D1	E-15
IC1	D-12
IC2	F-11
IC3	F-14
IC4	F-17
IC5	D-9
IC6	H-15
IC301	E-14
IC302	C-14
IC303	E-15
Q1	C-13
Q2	F-10
Q3	F-9
Q4	F-9
Q5	F-8
Q6	F-16
Q8	E-16
Q9	G-12
Q10	G-13
Q101	D-16
Q201	D-16
Q301	C-18
Q302	D-18


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
K
VR
DP
LD
GND
F
E
K
GND
D
C
A
B
【RF BOARD】
CNJ1
CNJ2
CNJ3
BLK
FOCUS ⊖
TRACKING ⊖
TRACKING ⊕
FOCUS ⊕
GND
SLED LIMIT
SPINDLE GND
SPINDLE DRIVE
+5V
−5V
SLED MOTOR⊖
SLED MOTOR ⊕
OPTICAL DEVICE SECTION
S902
LIMIT SWITCH
(ON: OPTICAL PICK-UP THE INNER POSITION)
【MOT FLEXIBLE BOARD】
M902
SLED MOTOR
KSS-160B
OPTICAL PICK-UP
IC1
IC2
IC3
IC5
IC6
IC301
IC302
IC303
Q1
Q2
Q3
Q4
Q5
Q9
Q10
D1
TH1
X2
RV1
RV2
RV3
RV4
RV5

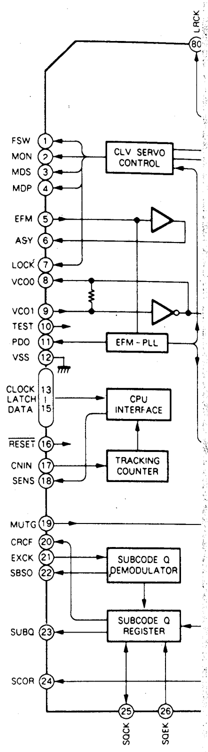

9
10
11
12
13
14
15
16
17
18
19
20
21
22
VR
DP
LD
GND
F
E
K
GND
D
C
A
B
CNJ1
IC1
IC2
IC3
IC4
IC6
IC301
IC302
IC303
Q1
Q2
Q3
Q6
Q8
Q9
Q10
Q101
Q201
Q301
Q302
RV1
RV2
RV3
RV4
RV6
BLK
【FLEXIBLE BOARD】
CNJ4
CDRST
L
R
SGND
MUTE
SRQT
ACK
CS
R/W
A/D
AD3
AD2
AD1
AD0
+5
-5
GND
GND
A
TO JACK BOARD
B
TO JACK BOARD
X2
L3
L7 2.2μH
D1
12

- **IC BLOCK DIAGRAMS**

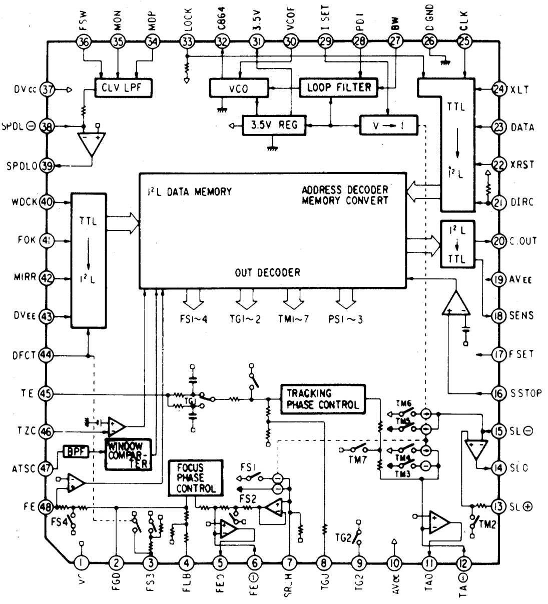
IC1 CXA-1081Q


RFI
RFO
RF⊖
P/N
LD
PD
PD1
PD2
VC
F
E
EO
EI
VR
CC2
VCC
LD ON
FOK
EFM
ASY
DGND
CB
CP
MIRR
DEFECT
TE
FE
FEBIAS
VEE
CCI
CURRENT REF
VOLTAGE REF
LEVEL SHIFT
FOK COMPARATOR
FOK AMP
EFM COMPARATOR
APC PD AMP
APC LD AMP
AUTO UN-SYMMETRIC CONTROL AMP
AUTO UN-SYMMETRIC CONTROL BUFFER
RF SYNTHESIS AMP
RFI-V AMP(1)
RFI-V AMP(2)
FI-V AMP
EI-V AMP
MIRROR AMP
PEAK HOLD
BOTTOM HOLD
MIRROR HOLD AMP
MIRROR DIFFERENCIAL AMP
MIRROR COMPARATOR
DEFECT AMP
DEFECT BOTTOM HOLD
DEFECT COMPARATOR
FOCUS ERROR AMP
TRACKING ERROR AMP
MID POINT VOLTAGE BUFFER

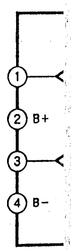
IC3 CXD1130Q


LRCK
FSW
MON
MDS
MDP
EFM
ASY
LOCK
VCOO
VCOI
TEST
PDO
VSS
CLOCK
LATCH
DATA
RESET
CNIN
SENS
MUTG
CRCF
EXCK
SBSO
SUBQ
SCOR
SQCK
SQEK
CLV SERVO CONTROL
EFM-PLL
CPU INTERFACE
TRACKING COUNTER
SUBCODE Q DEMODULATOR
SUBCODE Q REGISTER

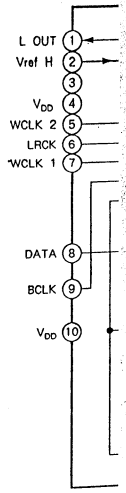
IC2 CXA1082AQ

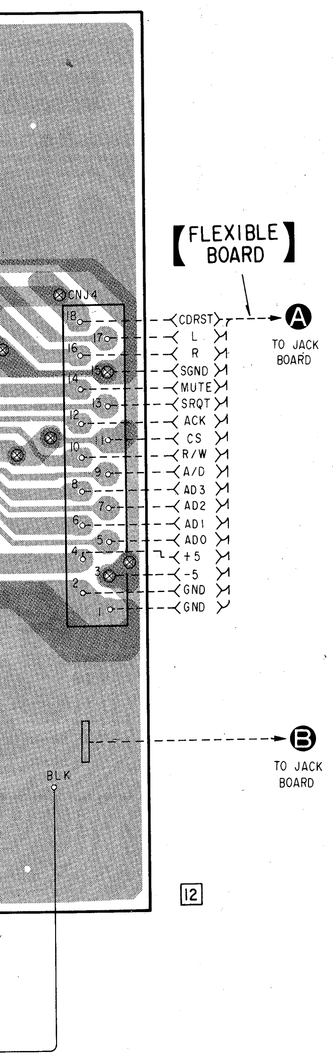

FSW
MON
MDP
LOCK
C864
3.5V
VCOF
I SET
PEI
BW
D GND
CLK
XLT
DATA
XRST
DIRC
C.OUT
AVEE
SENS
FSET
SSTOP
SL⊖
SLO
SL⊕
DVCC
SPDL⊕
SPDLO
WDCK
FOK
MIRR
DVEE
DFCT
TE
TZC
ATSC
FE
V-
FGD
FS3
FLB
FE⊖
FEO
SRCH
TGU
TG2
AVCC
TAO
TA⊖
CLV LPF
VCO
LOOP FILTER
3.5V REG
V→I
TTL
I²L
I²L DATA MEMORY
ADDRESS DECODER MEMORY CONVERT
OUT DECODER
FS1~4
TG1~2
TM1~7
PS1~3
TRACKING PHASE CONTROL
FOCUS PHASE CONTROL
BPF
WINDOW COMPARATOR
FS1
FS2
FS4
TM1
TM2
TM3
TM4
TM5
TM6
TM7
TG2

IC5



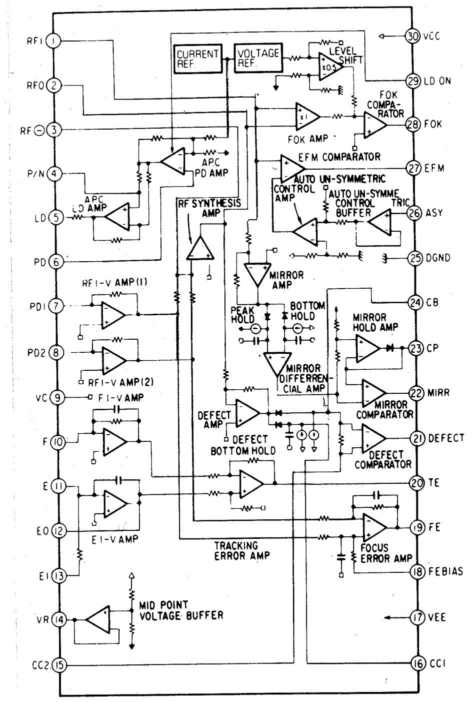
IC30


L OUT 1
Vref H 2
3
VDD 4
WCLK 2 5
LRCK 6
WCLK 1 7
DATA 8
BCLK 9
VDD 10

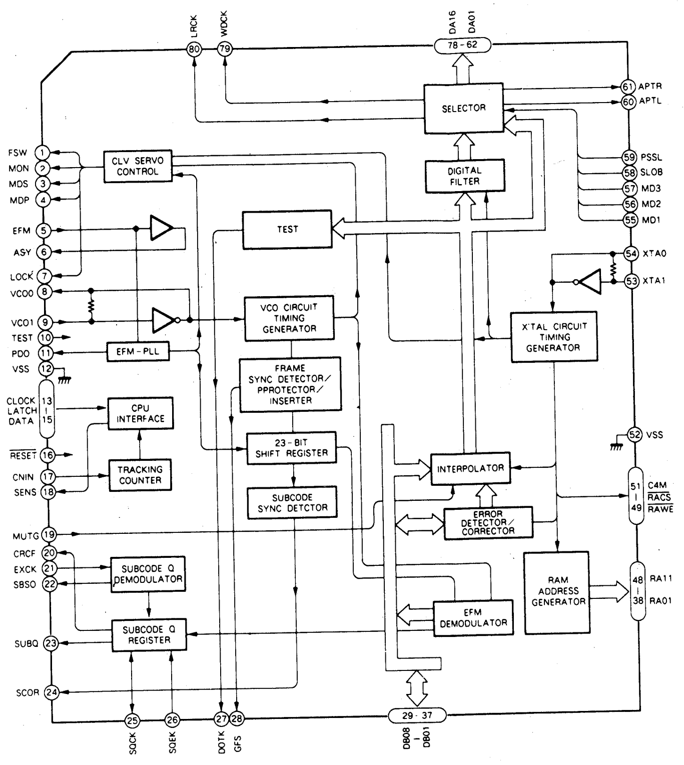

CNJ4
FLEXIBLE BOARD
CDRST
L
R
SGND
MUTE
SRQT
ACK
CS
R/W
A/D
AD3
AD2
AD1
AD0
+5
-5
GND
GND
A
TO JACK BOARD
B
TO JACK BOARD
BLK
12

• IC BLOCK DIAGRAMS

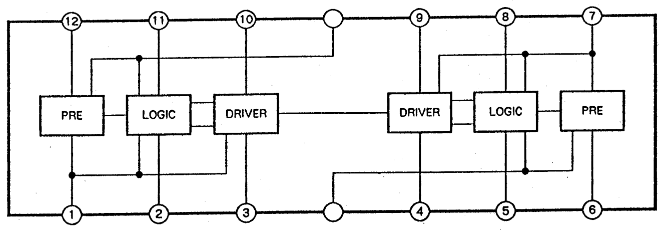
IC1 CXA-1081Q


RF I 1
RF O 2
RF ⊖ 3
P/N 4
LD 5
PD 6
PD I 7
PD 2 8
VC 9
F 10
E 11
EO 12
EI 13
VR 14
CC2 15
CC1 16
VEE 17
FEBIAS 18
FE 19
TE 20
DEFECT 21
MIRR 22
CP 23
CB 24
DGND 25
ASY 26
EFM 27
FOK 28
LD ON 29
VCC 30
CURRENT REF
VOLTAGE REF
LEVEL SHIFT
FOK COMPARATOR
FOK AMP
EFM COMPARATOR
APC PD AMP
APC LD AMP
AUTO UN-SYMMETRIC CONTROL AMP
AUTO UN-SYMMETRIC CONTROL BUFFER
RF SYNTHESIS AMP
MIRROR AMP
PEAK HOLD
BOTTOM HOLD
MIRROR HOLD AMP
MIRROR DIFFERENCIAL AMP
MIRROR COMPARATOR
RF I-V AMP(1)
RF I-V AMP(2)
F I-V AMP
E I-V AMP
DEFECT AMP
DEFECT BOTTOM HOLD
DEFECT COMPARATOR
TRACKING ERROR AMP
FOCUS ERROR AMP
MID POINT VOLTAGE BUFFER

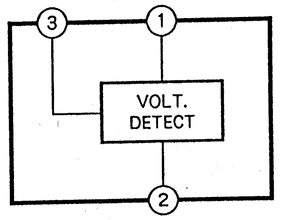
IC3 CXD1130Q


LRCK
WDCK
DA16
DA01
80
79
78 - 62
APTR 61
APTL 60
PSSL 59
SLOB 58
MD3 57
MD2 56
MD1 55
XTAO 54
XTAI 53
VSS 52
C4M 51
RACS
RAWE 49
RA11 48
RA01 38
FSW 1
MON 2
MDS 3
MDP 4
EFM 5
ASY 6
LOCK 7
VCOO 8
VCOI 9
TEST 10
PDO 11
VSS 12
CLOCK 13
LATCH
DATA 15
RESET 16
CNIN 17
SENS 18
MUTG 19
CRCF 20
EXCK 21
SBSO 22
SUBQ 23
SCOR 24
SQCK 25
SQEX 26
DOTX 27
GFS 28
29 - 37
DB08
DB01
CLV SERVO CONTROL
SELECTOR
DIGITAL FILTER
TEST
VCO CIRCUIT TIMING GENERATOR
EFM-PLL
FRAME SYNC DETECTOR/PPROTECTOR/INSERTER
CPU INTERFACE
23-BIT SHIFT REGISTER
TRACKING COUNTER
SUBCODE SYNC DETECTOR
XTAL CIRCUIT TIMING GENERATOR
INTERPOLATOR
ERROR DETECTOR/CORRECTOR
RAM ADDRESS GENERATOR
EFM DEMODULATOR
SUBCODE Q DEMODULATOR
SUBCODE Q REGISTER

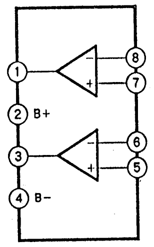
IC501, 507 LB1649


12
11
10
9
8
7
PRE
LOGIC
DRIVER
DRIVER
LOGIC
PRE
1
2
3
4
5
6

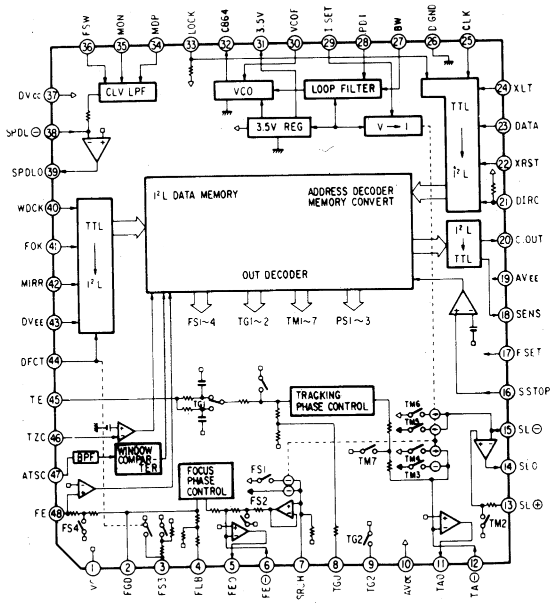
IC502 S-8054HN-CB


3
1
VOLT. DETECT
2

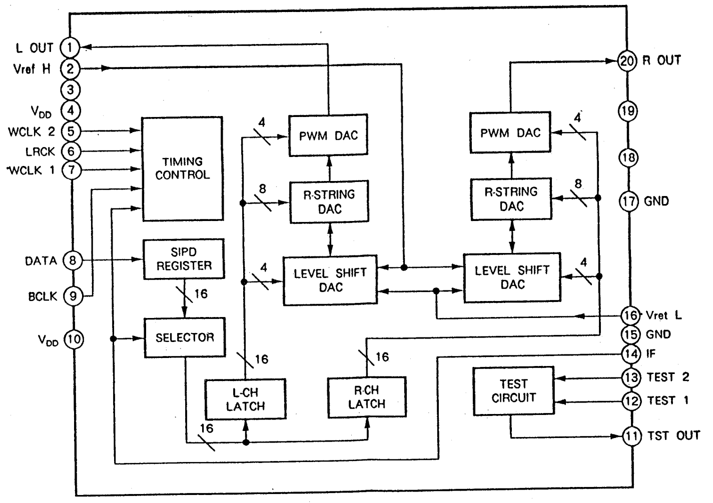
IC5 L272M


1
2 B+
3
4 B−
8
7
6
5

IC2 CXA1082AQ


FSW 36
MON 35
MDP 34
LOCK 33
C864 32
3.5V 31
VCOF 30
I.SET 29
PDI 28
BW 27
DGND 26
CLK 25
XLT 24
DATA 23
XRST 22
DIRC 21
C.OUT 20
AVEE 19
SENS 18
F SET 17
S STOP 16
SL⊖ 15
SL O 14
SL⊕ 13
DVCC 37
SPDL⊖ 38
SPDLO 39
WDCK 40
FOK 41
MIRR 42
DVEE 43
DFCT 44
TE 45
TZC 46
ATSC 47
FE 48
V 1
FGD 2
FS3 3
FLB 4
FE O 5
FE⊖ 6
SR_H 7
TG1 8
TG2 9
AVCC 10
TA O 11
TA⊖ 12
CLV LPF
VCO
LOOP FILTER
3.5V REG
V→I
TTL
I²L
I²L DATA MEMORY
ADDRESS DECODER MEMORY CONVERT
OUT DECODER
FSI~4
TGI~2
TMI~7
PSI~3
TRACKING PHASE CONTROL
BPF
WINDOW COMPARATER
FOCUS PHASE CONTROL
FS1
FS2
FS4
TM1
TM2
TM3
TM4
TM5
TM6
TM7
TG2

IC301 CXD1161

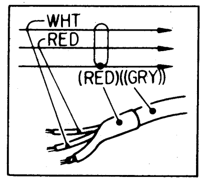

L OUT 1
Vref H 2
3
VDD 4
WCLK 2 5
LRCK 6
WCLK 1 7
DATA 8
BCLK 9
VDD 10
R OUT 20
19
18
GND 17
Vref L 16
GND 15
IF 14
TEST 2 13
TEST 1 12
TST OUT 11
TIMING CONTROL
PWM DAC
R-STRING DAC
LEVEL SHIFT DAC
PWM DAC
R-STRING DAC
LEVEL SHIFT DAC
SIPD REGISTER
SELECTOR
L-CH LATCH
R-CH LATCH
TEST CIRCUIT
4
8
4
16
16
16
16
4
8
4

3-2. PRINTED WIRING BOARDS

- See page 9–11 for RF Board Mounting Diagram.
- See page 22 for Semiconductor Lead Layouts.

Note:

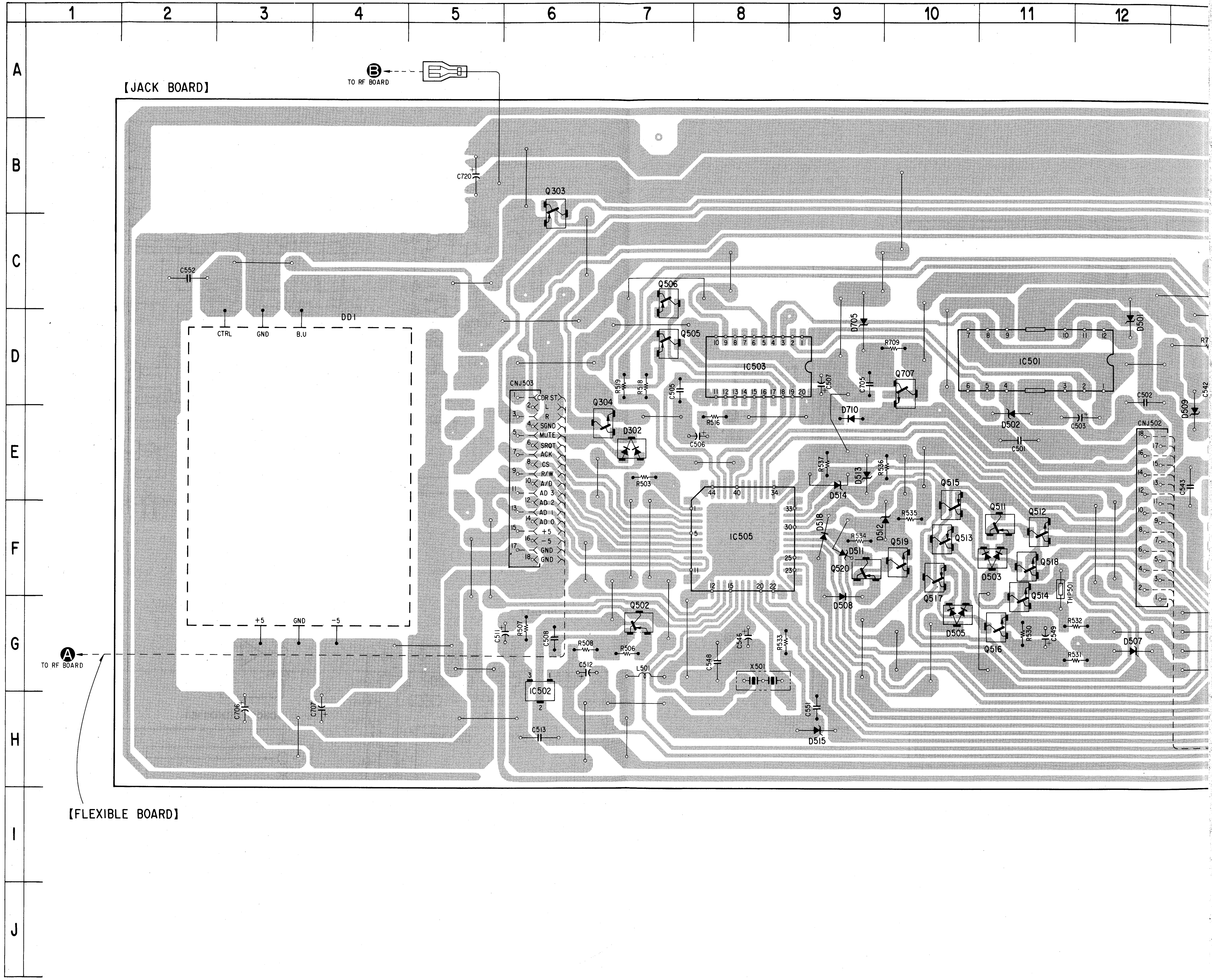
- Color code of sleeving over the end of the jacket.

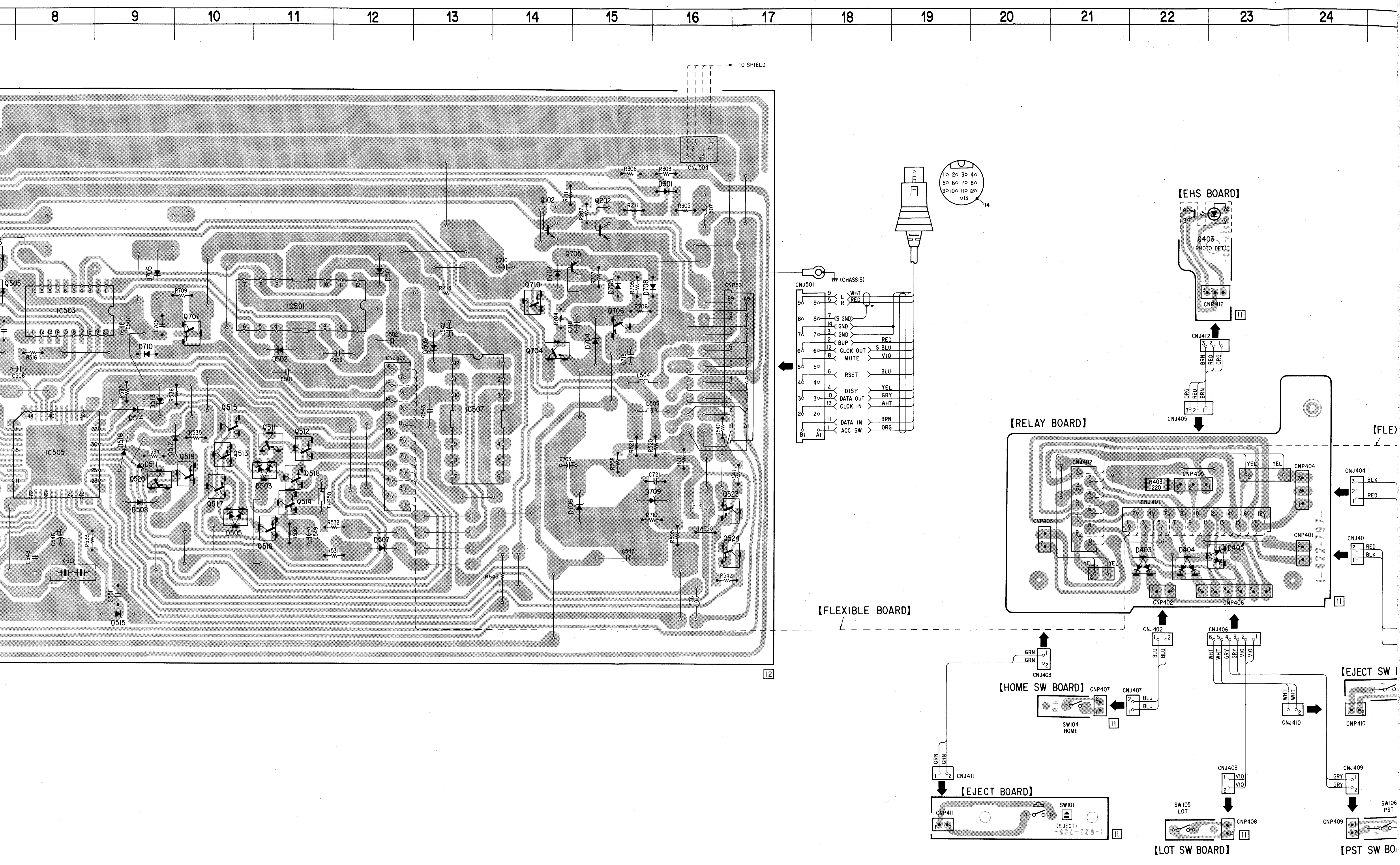

WHT
RED
(RED)((GRY))

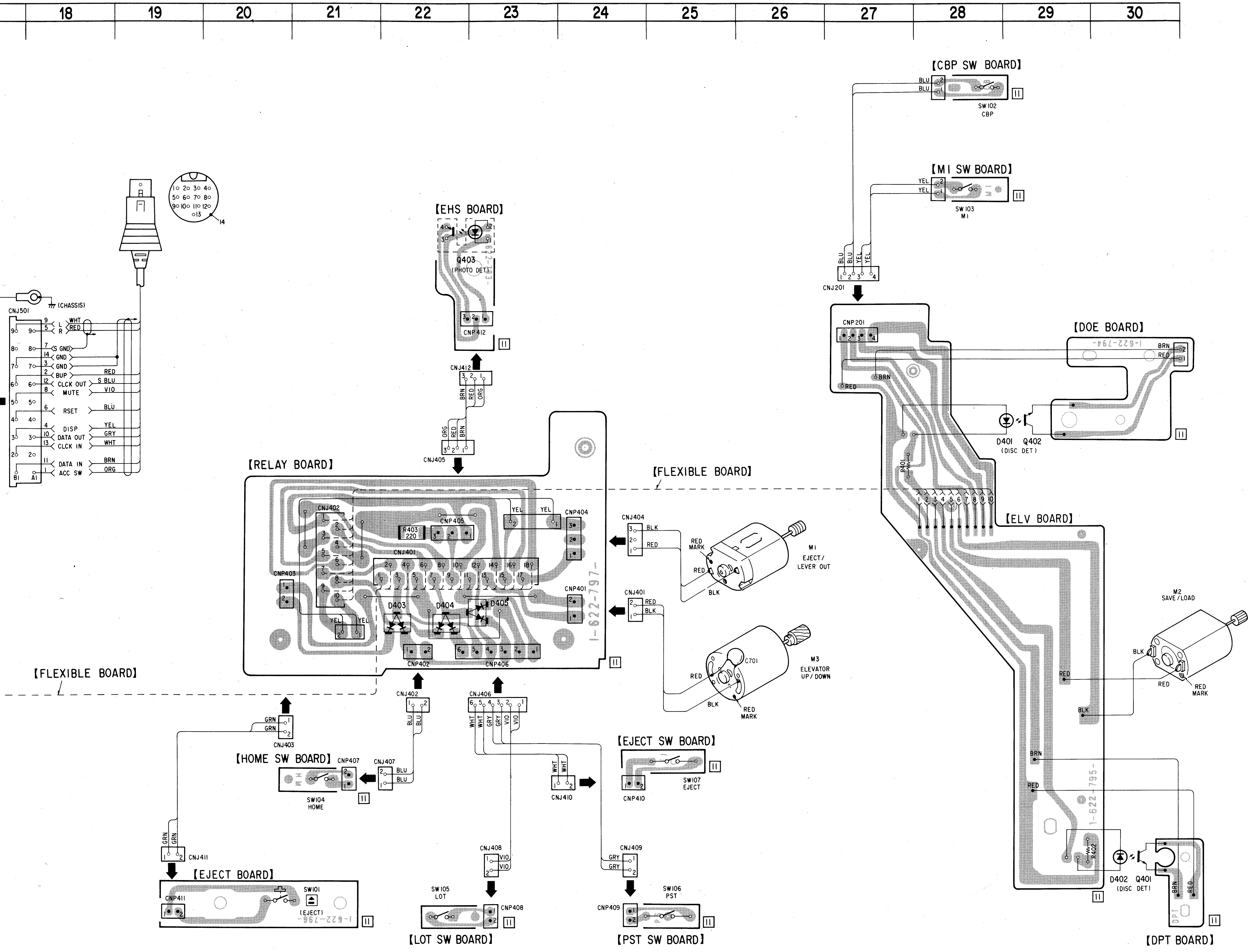
- ○── : parts extracted from the component side.
- ●── : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.

• SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D301	C-16	Q102	C-14
D302	E-7	Q202	C-15
D401	E-29	Q303	B-6
D402	J-30	Q304	E-7
D403	G-22	Q401	J-30
D404	G-22	Q402	E-29
D405	G-23	Q403	C-22
D501	D-12	Q502	G-7
D502	E-11	Q505	D-7
D503	F-11	Q506	C-7
D505	G-10	Q511	F-11
D507	G-12	Q512	F-11
D508	G-9	Q513	F-10
D509	E-13	Q514	F-11
D511	F-9	Q515	E-10
D512	F-9	Q516	G-11
D513	E-9	Q517	F-10
D514	E-9	Q518	F-11
D515	H-9	Q519	F-10
D518	F-9	Q520	F-9
D703	G-15	Q523	I-18
D704	D-15	Q524	J-18
D705	D-9	Q704	E-14
D706	G-15	Q705	D-15
D707	D-14	Q706	D-15
D708	D-15	Q707	D-10
D709	F-16	Q710	D-14
D710	E-9		
IC501	D-11		
IC502	H-6		
IC503	D-8		
IC505	F-8		
IC507	E-13		


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
TO RF BOARD
[JACK BOARD]
C720
Q303
C552
Q506
Q505
DD1
CTRL
GND
B.U
IC503
D705
R709
Q707
IC501
D501
C507
C705
C505
R519
R518
Q304
D302
R516
C506
D710
CNJ503
CDR ST
R
SGND
MUTE
SRQT
ACK
CS
R/W
A/D
AD 3
AD 2
AD 1
AD 0
+5
−5
GND
GND
R503
R537
D513
R536
D514
IC505
D518
R534
D511
D512
R535
Q515
Q511
Q512
Q513
Q519
Q520
D503
Q518
Q517
Q514
THP501
D508
D505
Q516
R530
C549
R532
R531
D507
D502
C503
C501
C502
D509
CNJ502
C543
C542
+5
GND
−5
Q502
C511
R507
C508
R508
R506
C512
L501
C546
R533
C548
X501
IC502
C513
C706
C707
C551
D515
TO RF BOARD
[FLEXIBLE BOARD]


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
TO SHIELD
CNJ504
IC503
IC501
IC505
IC507
CNJ502
CNP501
CNJ501
(CHASSIS)
X501
THP501
L
R
WHT
RED
S GND
GND
GND
BUP
CLCK OUT
MUTE
RSET
DISP
DATA OUT
CLCK IN
DATA IN
ACC SW
RED
S BLU
VIO
BLU
YEL
GRY
WHT
BRN
ORG
【EHS BOARD】
Q403
(PHOTO DET)
CNP412
CNJ412
CNJ405
【RELAY BOARD】
CNJ402
CNP405
R403 220
CNJ401
CNP404
CNJ404
CNP403
CNP401
D403
D404
D405
CNP402
CNP406
1-622-797-
【FLEX
【FLEXIBLE BOARD】
CNJ403
GRN
【HOME SW BOARD】
CNP407
CNJ407
SW104 HOME
CNJ406
CNJ410
【EJECT SW
CNP410
CNJ411
【EJECT BOARD】
CNP411
SW101 (EJECT)
1-622-798-
CNJ408
SW105 LOT
CNP408
【LOT SW BOARD】
CNJ409
SW106 PST
CNP409
【PST SW BO
11
12


18
19
20
21
22
23
24
25
26
27
28
29
30
【CBP SW BOARD】
BLU
BLU
SW102
CBP
【MI SW BOARD】
YEL
YEL
SW103
MI
BLU
BLU
YEL
YEL
CNJ201
CNP201
【DOE BOARD】
1-622-794-
BRN
RED
D401 Q402
(DISC DET)
R401
【ELV BOARD】
1-622-795-
M2
SAVE/LOAD
BLK
RED
RED MARK
BRN
RED
R402
D402 Q401
(DISC DET)
DPT
【DPT BOARD】
【EHS BOARD】
Q403
(PHOTO DET)
CNP412
CNJ412
BRN
RED
ORG
ORG
RED
BRN
CNJ405
【RELAY BOARD】
【FLEXIBLE BOARD】
CNJ402
CNP405
R403
220
CNJ401
CNP403
CNP404
CNP401
D403
D404
D405
YEL
YEL
1-622-797-
CNP402
CNP406
CNJ404
BLK
RED
RED MARK
M1
EJECT/LEVER OUT
RED
BLK
CNJ401
RED
BLK
M3
ELEVATOR UP/DOWN
C701
RED
BLK
RED MARK
CNJ501
(CHASSIS)
L
R
WHT
RED
(S GND)
GND
GND
BUP
CLCK OUT
MUTE
RSET
DISP
DATA OUT
CLCK IN
DATA IN
ACC SW
RED
S BLU
VIO
BLU
YEL
GRY
WHT
BRN
ORG
B1
A1
14
【FLEXIBLE BOARD】
CNJ403
GRN
GRN
【HOME SW BOARD】
CNP407
CNJ407
BLU
BLU
SW104
HOME
CNJ402
BLU
BLU
CNJ406
WHT
WHT
GRY
GRY
VIO
VIO
【EJECT SW BOARD】
SW107
EJECT
CNP410
CNJ410
WHT
WHT
GRN
GRN
CNJ411
【EJECT BOARD】
CNP411
SW101
(EJECT)
1-622-796-
CNJ408
VIO
VIO
SW105
LOT
CNP408
【LOT SW BOARD】
CNJ409
GRY
GRY
CNP409
SW106
PST
【PST SW BOARD】

3-3. SCHEMATIC DIAGRAM

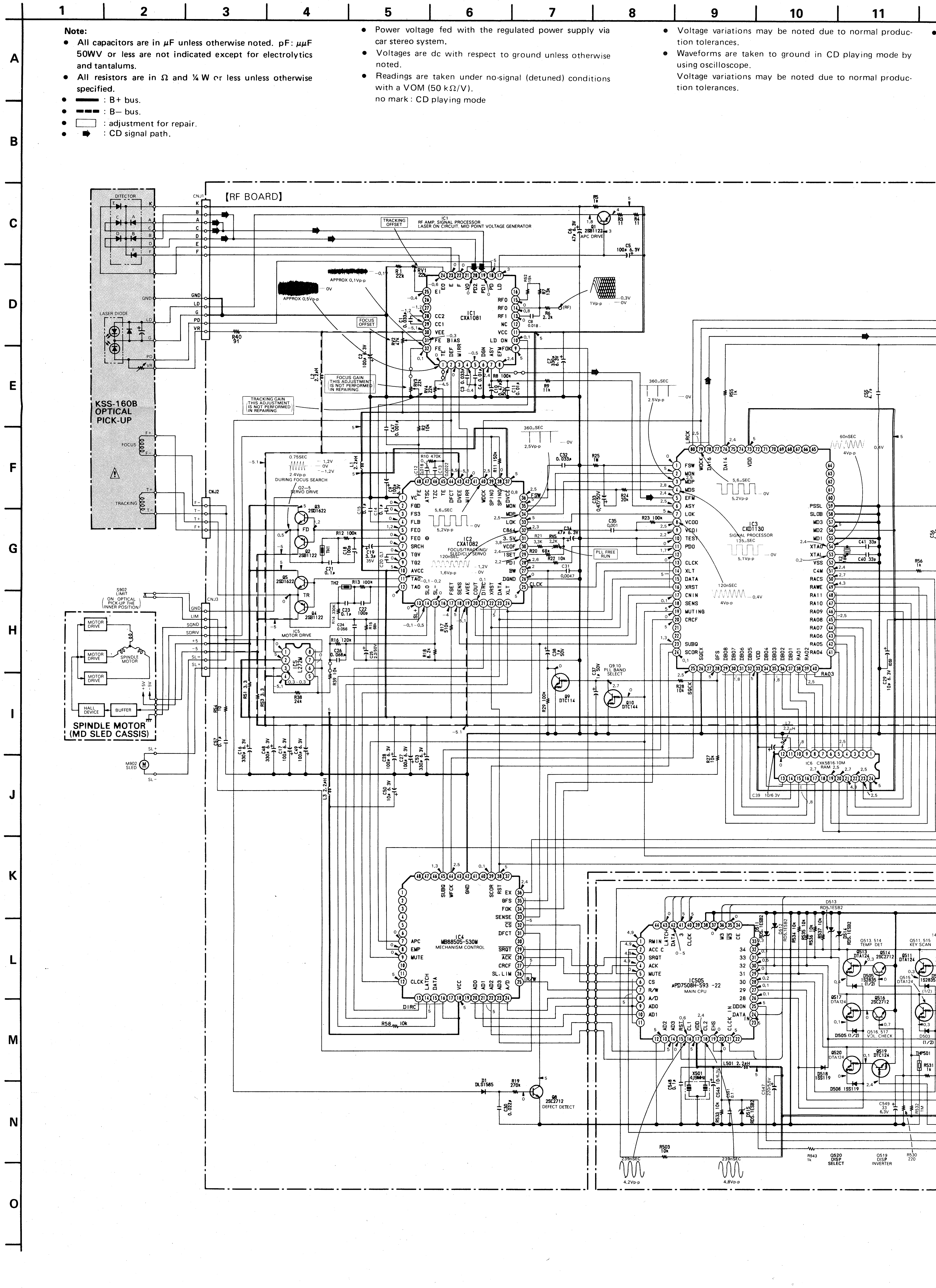
- **See page 9–11 for RF Board Mounting Diagram.**
- **See page 12 for IC Block Diagrams.**

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ▬▬ : B+ bus.
- ▬ ▬ : B– bus.
- ☐ : adjustment for repair.
- ➡ : CD signal path.

- Power voltage fed with the regulated power supply via car stereo system.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50 kΩ/V).
  no mark : CD playing mode

- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken to ground in CD playing mode by using oscilloscope.
  Voltage variations may be noted due to normal production tolerances.


1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H I J K L M N O
[RF BOARD]
KSS-160B OPTICAL PICK-UP
DITECTOR
LASER DIODE
FOCUS
TRACKING
CNJ1
CNJ2
CNJ3
IC1 RF AMP, SIGNAL PROCESSOR LASER ON CIRCUIT, MID POINT VOLTAGE GENERATOR
IC1 CXA1081
TRACKING OFFSET
FOCUS OFFSET
FOCUS GAIN THIS ADJUSTMENT IS NOT PERFORMED IN REPAIRING.
TRACKING GAIN THIS ADJUSTMENT IS NOT PERFORMED IN REPAIRING.
Q1 2SB1122 APC DRIVE
IC2 CXA1082 FOCUS/TRACKING/SLED/CLV SERVO
Q2–5 SERVO DRIVE
Q3 2SD1622
Q2 2SB1122
Q5 2SD1622
Q4 2SB1122
IC5 MOTOR DRIVE
IC5 LZ72M
DURING FOCUS SEARCH
PLL FREE RUN
IC3 CXD1130 SIGNAL PROCESSOR
IC6 CXK5816-10M RAM
S902 LIMIT ON: OPTICAL PICK-UP THE INNER POSITION
MOTOR DRIVE
SPINDLE MOTOR
HALL DEVICE
BUFFER
SPINDLE MOTOR (MD SLED CASSIS)
M902 SLED
Q9 DTC114
Q10 DTC144
Q9,10 PLL BAND SELECT
IC4 MB88505-530M MECHANISM CONTROL
D1 1XLS1585
Q8 2SC2712 DEFECT DETECT
IC505 μPD7508H-593-22 MAIN CPU
X501 4.19MHz
L501 2.2μH
Q513, 514 TEMP DET
Q511, 515 KEY SCAN
Q516, 517 VOL CHECK
Q520 DISP SELECT
Q519 DISP INVERTER
APPROX 0.5Vp-p
APPROX 0.1Vp-p
360μSEC
60nSEC
120nSEC
239nSEC 4.2Vp-p
239nSEC 4.8Vp-p

rmal produc-

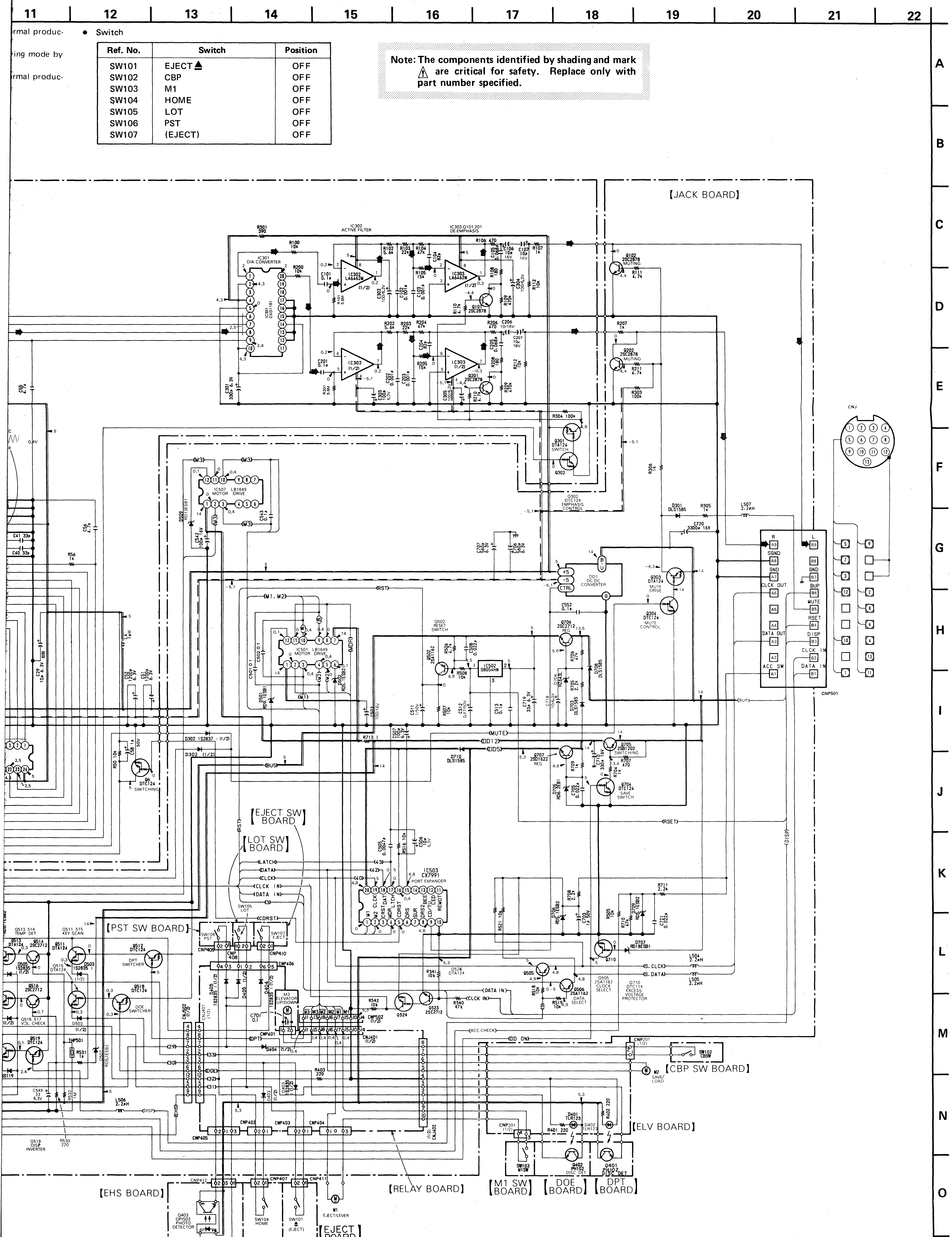
ing mode by

rmal produc-

- Switch

Ref. No.	Switch	Position
SW101	EJECT ▲	OFF
SW102	CBP	OFF
SW103	M1	OFF
SW104	HOME	OFF
SW105	LOT	OFF
SW106	PST	OFF
SW107	(EJECT)	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.



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A
B
C
D
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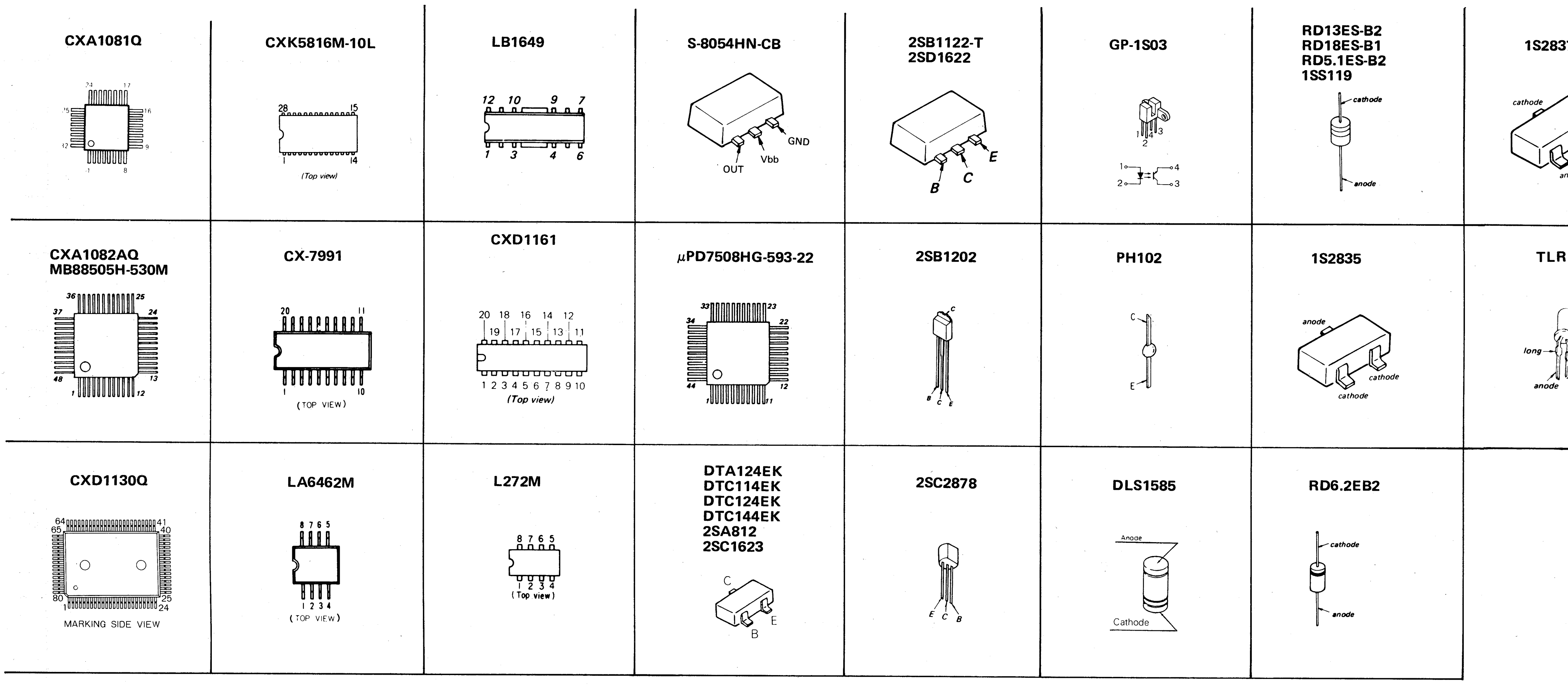
I
J
K
L
M
N
O
【JACK BOARD】
IC301 D/A CONVERTER
IC301 CXD1161
IC302 ACTIVE FILTER
IC302 LA6462M (1/2)
IC303,Q101,201 DE-EMPHASIS
IC303 LA6462M (1/2)
Q101 2SC2878
Q201 2SC2878
Q102 2SC2878 MUTING
Q202 2SC2878 MUTING
Q301 DTA124 SWITCH
Q302 DTC124 EMPHASIS CONTROL
DD1 DC-DC CONVERTER
Q303 DTA124 MUTE DRIVE
Q304 DTC124 MUTE CONTROL
D301 DLS1585
L507 2.2μH
C720 3300μ 16V
CNJ
CNP501
R
SGND
GND
CLCK OUT
DATA OUT
ACC SW
L
GND
BUP
MUTE
RSET
DISP
CLCK IN
DATA IN
IC507 LB1649 MOTOR DRIVE
IC501 LB1649 MOTOR DRIVE
Q502 RESET SWITCH
IC502 S8054HN
Q706 2SC2712 REG
Q707 2SD1622 REG
Q705 2SB1202 SWITCHING
Q704 DTC124 SAVE SWITCH
D710 DLS1585
D302 1S2837 (1/2)
Q6 DTC124 SWITCHING
IC503 CX7991 PORT EXPANDER
Q710 DTC114 EXCESS VOLTAGE PROTECTOR
D707 RD18ESB1
Q505 2SA1162 CLOCK SELECT
Q506 2SA1162 DATA SELECT
Q524 DTA124
Q523 2SC2712
L504 2.2μH
L505 2.2μH
【EJECT SW BOARD】
【LOT SW BOARD】
【PST SW BOARD】
SW106 PST
SW105 LOT
SW107 EJECT
Q513, 514 TEMP DET
Q511, 515 KEY SCAN
Q512 DPT SWITCHER
Q518 DTC124 DOE SWITCHER
Q516, 517 VOL. CHECK
Q519 DTC124
Q519 DISP INVERTER
THP501
M3 ELEVATOR UP/DOWN
CNP401
CNP405
CNP402
CNP403
CNP404
CNJ402
CNJ502
CNJ401
CNP406
CNP409
CNP410
CNP408
L506 2.2μH
【RELAY BOARD】
【EHS BOARD】
CNP412
CNP407
CNP411
Q403 GP1S03 PHOTO DETECTOR
SW104 HOME
SW101 (EJECT)
M1 EJECT/LEVER
【EJECT BOARD】
【HOME SW BOARD】
CNP201 (1/2)
SW102 CBSW
M2 SAVE/LOAD
【CBP SW BOARD】
D401 TLR123
D402 TLR123
R401 220
R402 220
【ELV BOARD】
SW103 M1SW
Q402 PH102 DISC DET
Q401 PH102 DISC DET
【M1 SW BOARD】
【DOE BOARD】
【DPT BOARD】
(MUTE)
(DD12)
(DD5)
(RST)
(BUS)
(BUP)
(RSET)
(DISP)
(LATCH)
(DATA)
(CLCK)
(CLCK IN)
(DATA IN)
(CDRST)
(S. CLCK)
(S. DATA)
(ACC CHECK)
(DD ON)
(DPT)
(DOE)
(EHS)

- **Semiconductor Lead Layouts**


CXA1081Q
CXK5816M-10L
(Top view)
LB1649
S-8054HN-CB
GND
OUT
Vbb
2SB1122-T
2SD1622
B
C
E
GP-1S03
RD13ES-B2
RD18ES-B1
RD5.1ES-B2
1SS119
cathode
anode
1S283
CXA1082AQ
MB88505H-530M
CX-7991
(TOP VIEW)
CXD1161
(Top view)
µPD7508HG-593-22
2SB1202
PH102
1S2835
anode
cathode
TLR
long
CXD1130Q
MARKING SIDE VIEW
LA6462M
(TOP VIEW)
L272M
(Top view)
DTA124EK
DTC114EK
DTC124EK
DTC144EK
2SA812
2SC1623
2SC2878
DLS1585
Anode
Cathode
RD6.2EB2

SECTION 4
EXPLODED VIEWS

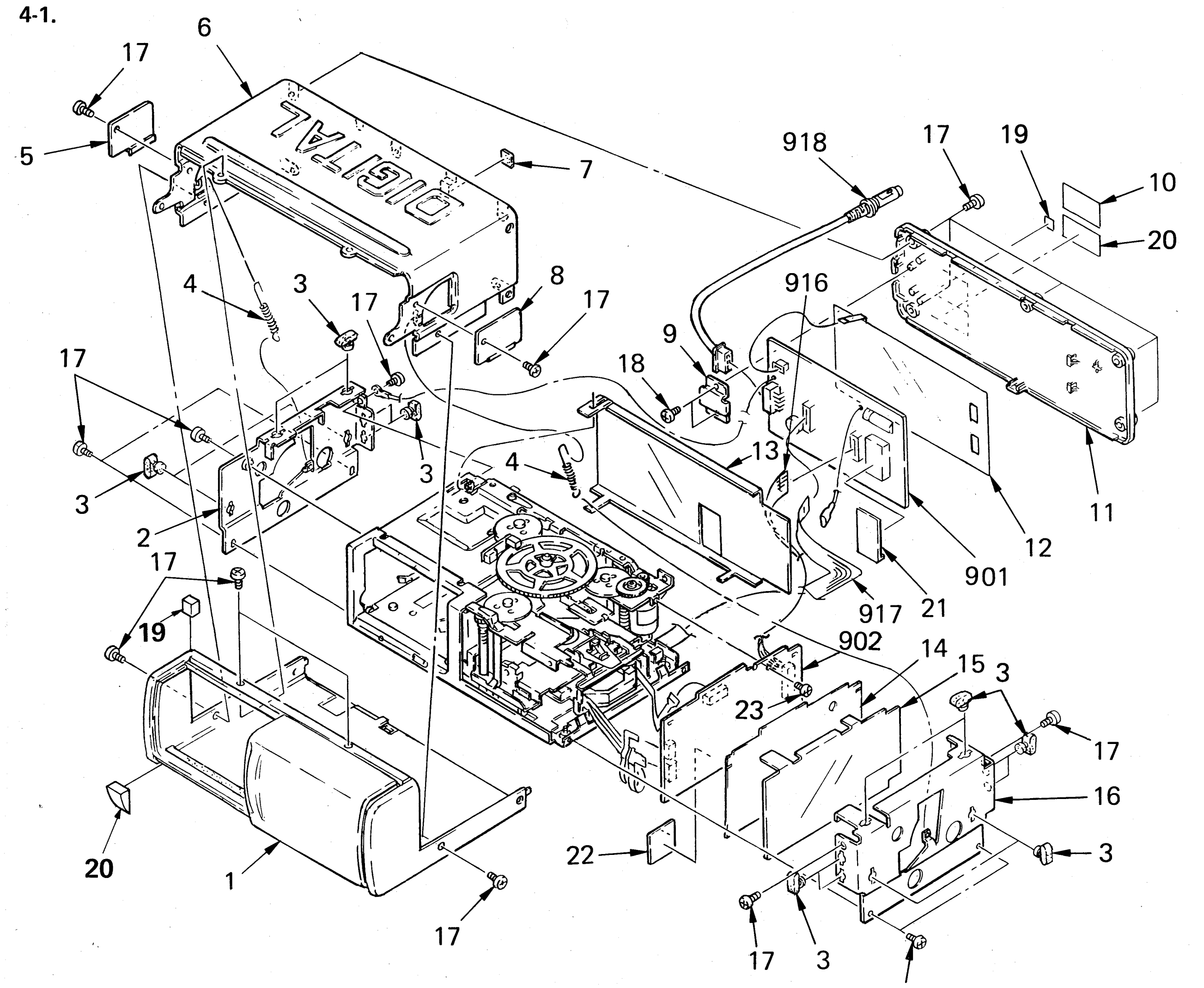
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-1.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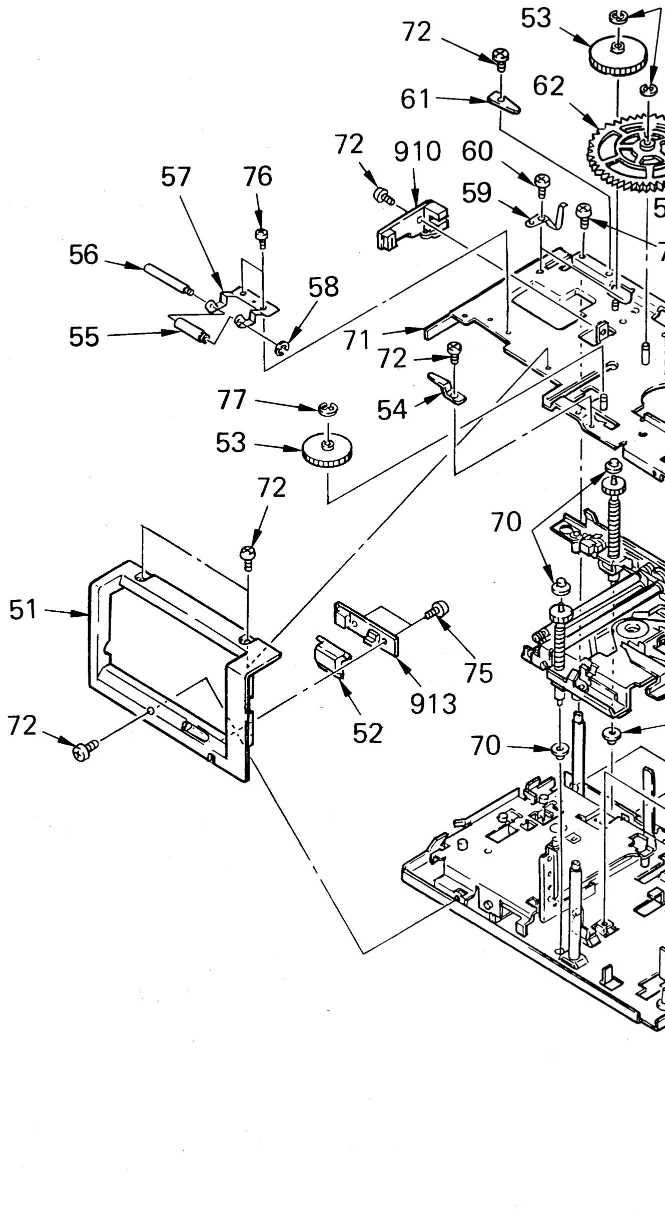
No.	Part No.	Description	Remarks
1	X-3348-203-1	PANEL ASSY, FRONT	
2	*3-333-071-01	BRACKET (LEFT), I DAMPER	
3	3-343-730-01	DAMPER, I	
4	3-333-068-01	SPRING (FLOATING), TENSION	
5	3-333-069-01	COVER (LEFT), SIDE	
6	3-333-080-01	CASE, UPPER	
7	3-831-441-11	CUSHION	
8	3-333-070-01	COVER (RIGHT), SIDE	
9	3-333-065-01	RETAINER, 18P CONNECTOR	
11	3-333-078-01	CASE, BOTTOM	
12	*3-333-074-01	PLATE, SHIELD	
13	*3-333-066-01	SHEET (LARGE), INSULATING	
14	*3-343-732-01	PLATE (SMALL), SHIELD	
15	*3-333-073-01	SHEET (SMALL), INSULATING	
16	*3-333-072-01	BRACKET (RIGHT), I DAMPER	
17	7-682-546-09	SCREW +B 3X5	
18	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
19	3-348-219-01	CUSHION	
20	3-348-220-01	CUSHION	
21	*3-343-739-01	PLATE, PROTECTION, FLEXIBLE	
23	7-685-791-09	SCREW +BVTT 2.6X5 (S)	
901	*A-3265-015-A	MOUNTED PCB, JACK	
902	*A-3265-016-A	MOUNTED PCB, RF	
916	1-623-641-11	PC BOARD, RF FLEXIBLE	
917	1-623-642-11	PC BOARD, TRANSLATION FLEXIBLE	
918	1-559-439-11	CORD (WITH CONNECTOR)	

4-2.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No.	Part No.	Description	Remarks
51	3-343-724-01	ESCUTCHEON	
52	3-343-712-01	BUTTON, EJECT	
53	3-331-916-01	GEAR (MIDDLE), ELEVATOR	
54	*3-333-082-01	RETAINER, SCREW, FEED	
55	3-343-708-01	ROLLER, MAGAZINE	
56	*3-343-711-01	SHAFT, ROLLER, MAGAZINE	
57	3-343-710-01	SPRING	
58	7-624-102-04	STOP RING 1.5, TYPE -E	
59	3-343-709-01	SPRING	
60	7-621-775-00	SCREW +B 2.6X3	
61	3-331-907-01	RETAINER, SCREW, FEED	
62	3-331-952-02	GEAR (LARGE), ELEVATOR	
63	3-343-707-01	GEAR (SMALL), ELEVATOR	
64	7-682-144-01	SCREW +P 3X3	
65	4-917-404-02	GEAR, MOTOR	
66	7-621-731-08	SET-SCT, HEX. 2X2.5, FLAT POINT	

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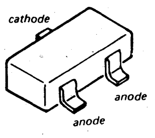
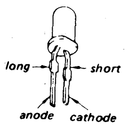
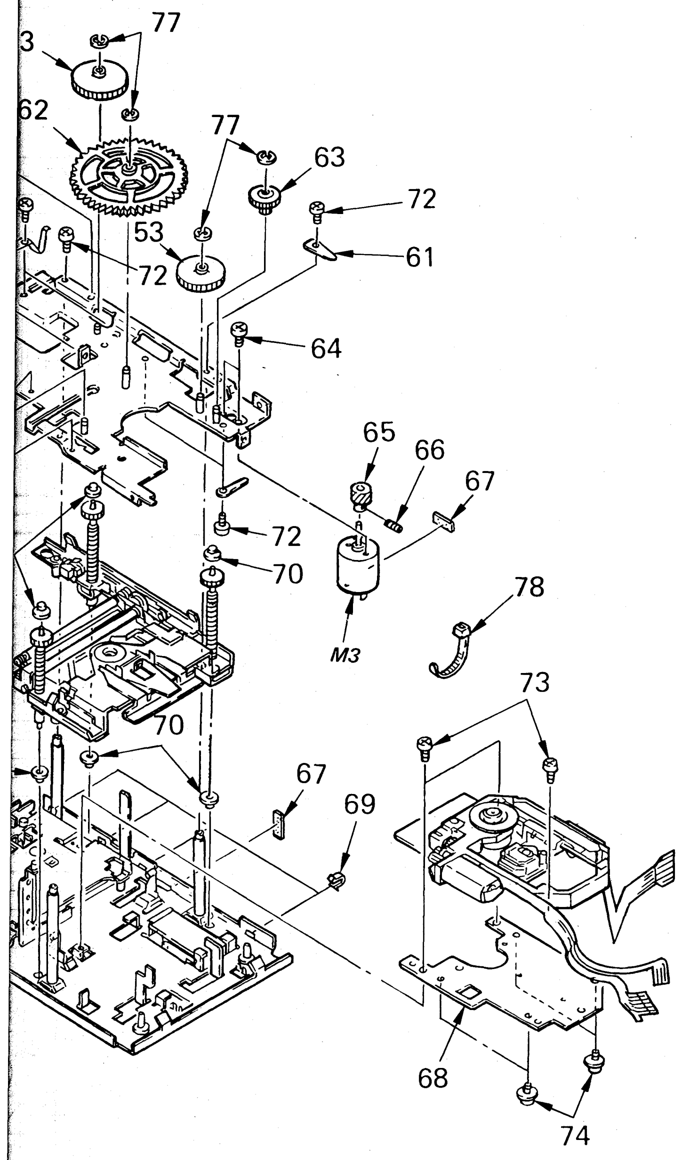
M3

1S2837


cathode
anode
anode

TLR123


long
short
anode
cathode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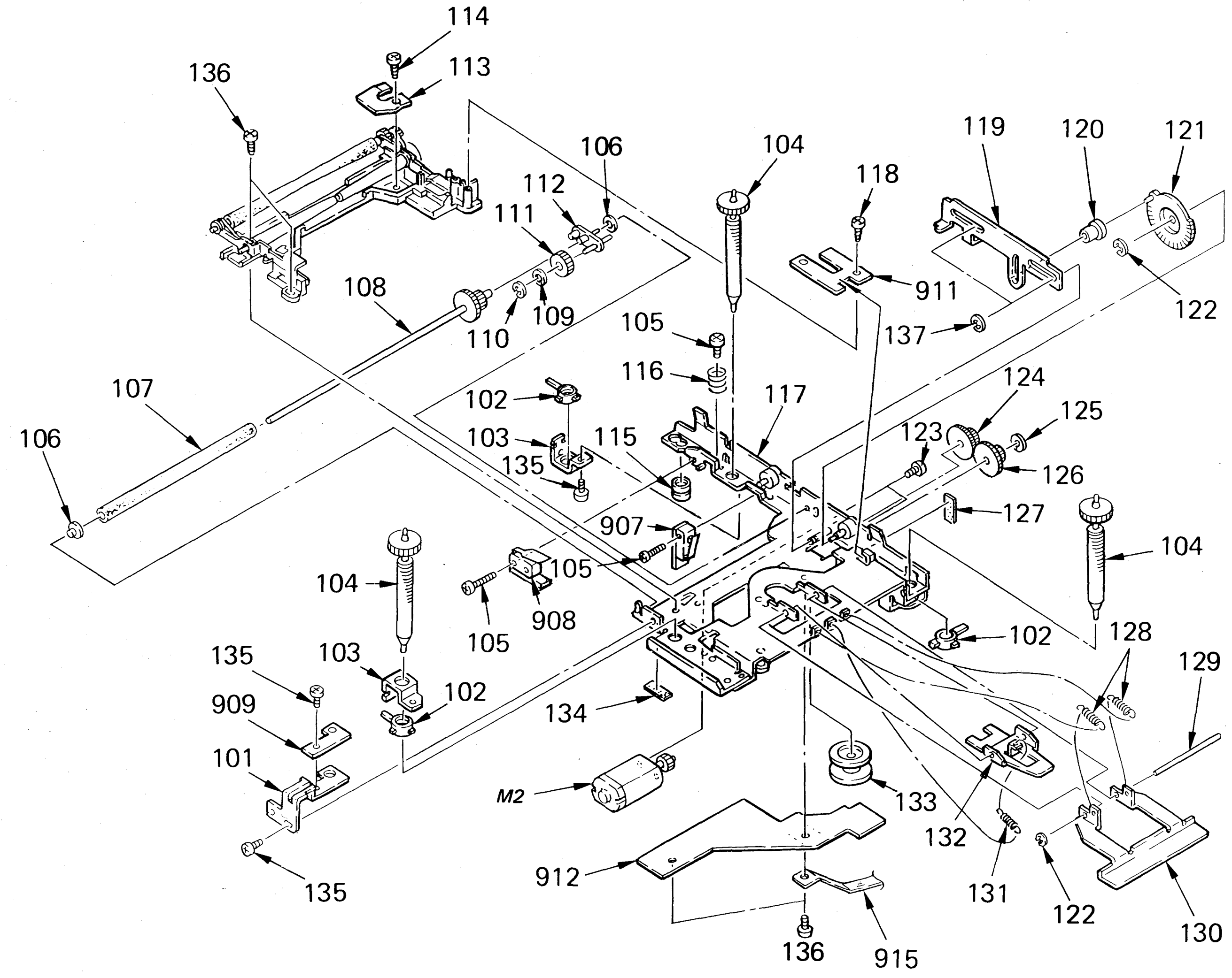
emarks	No.	Part No.	Description	Remarks
	67	3-831-441-11	CUSHION	
	68	*3-343-714-01	BRACKET, FOP	
	69	3-660-815-00	CLIP, CABLE	
	70	3-333-081-01	BEARING (UPPER & LOWER)	
	71	*X-3329-567-1	PLATE ASSY, TOP	
	72	7-621-259-35	SCREW +BVTT 2.6X5 (S)	
	73	7-621-255-25	SCREW +BVTT 2X4 (S)	
	74	7-685-103-14	+ PTPWH (2X5)	
	75	7-685-132-11	SCREW +P 2.6X5 TYPE2 NON-SLIT	
	76	7-621-255-15	SCREW +P 2X3	
	77	7-624-118-01	RING, RETAINING E-2.5	
	78	3-671-893-01	CLAMP	
	910	*1-622-793-11	PC BOARD, EHS	
	913	*1-622-796-11	PC BOARD, EJECT	
	M3	1-541-309-11	MOTOR, L (RF-370C)	

4-3.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101
M2
133
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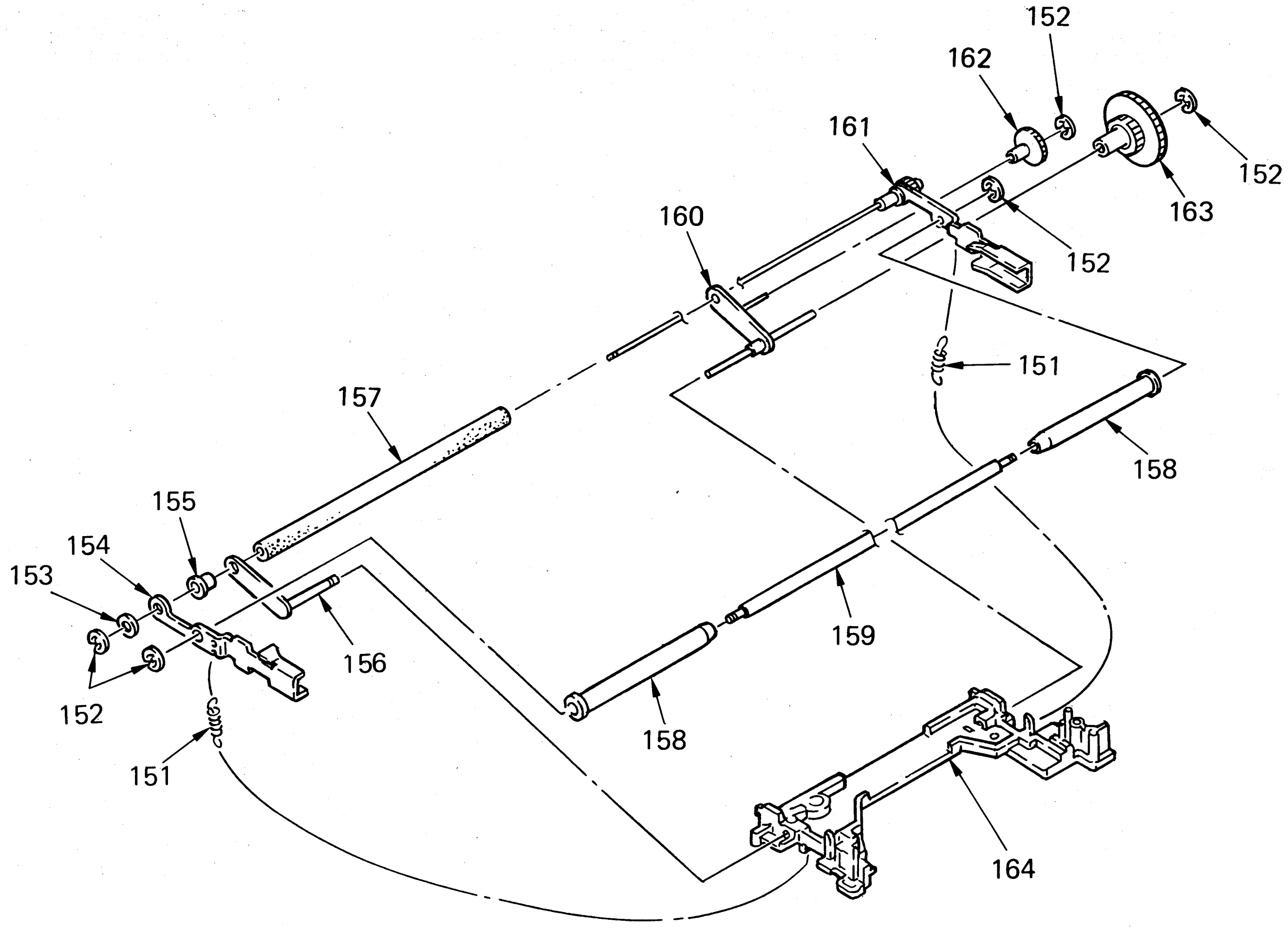
No.	Part No.	Description	Remarks
101	*3-333-092-01	BRACKET (S), PHOTO	
102	3-329-560-01	SCREW, M6	
103	*3-329-570-03	PLATE, SCREW	
104	X-3329-554-1	SCREW ASSY, FEED	
105	7-621-772-40	SCREW +B 2X8	
106	3-329-558-01	BEARING, MAIN ROLLER	
107	3-323-231-02	ROLLER (LOWER)	
108	X-3329-520-1	SHAFT (LOWER) ASSY, ROLLER	
109	3-329-553-01	SPRING, E	
110	3-321-813-11	WASHER, COTTER POLYETHYLENE	
111	3-329-555-01	GEAR (E), R	
112	*X-3329-522-1	LEVER ASSY, R	
113	*3-333-006-01	REINFORCEMENT	
114	7-621-770-67	SCREW +B 2.6X6	
115	3-329-551-01	METAL (B), SHAFT	
116	3-534-512-01	SPRING, COMPRESSION	
117	*X-3329-565-2	CHASSIS ASSY, E	
118	7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT	
119	*3-331-944-01	LEVER, SLIDE	
120	3-329-547-01	ROLLER, IDLE	
121	3-331-943-01	GEAR (F), R	
122	7-624-102-04	STOP RING 1.5, TYPE -E	

No.	Part No.	Description	Remarks
123	7-621-255-10	SCREW +P 2X3	
124	3-333-099-01	GEAR (A)	
125	3-895-818-01	WASHER, POLYETHYLENE, COTTER	
126	3-343-701-01	GEAR (B)	
127	3-509-149-00	CUSHION	
128	3-571-823-00	SPRING, TENSION	
129	3-333-098-02	SHAFT, DISK CHUCK	
130	*X-3329-566-1	STOPPER ASSY, CD	
131	3-535-369-XX	SPRING, TENSION	
132	3-343-718-02	BRACKET, DISK CHUCK	
133	3-343-717-01	PLATE (M), CHUCK	
134	3-831-441-11	CUSHION	
135	7-621-255-25	SCREW +BVTT 2X4 (S)	
136	7-621-259-35	SCREW +BVTT 2.6X5 (S)	
137	7-624-104-04	STOP RING 2.0, TYPE -E	
907	*1-622-790-11	PC BOARD, MI	
908	*1-622-791-11	PC BOARD, CB	
909	*1-622-792-11	PC BOARD, DPT	
911	*1-622-794-11	PC BOARD, DOE	
912	*1-622-795-11	PC BOARD, LED	
915	1-623-640-11	PC BOARD, MD FLEXIBLE	
M2	X-3329-560-1	MOTOR ASSY, M2	

4-4.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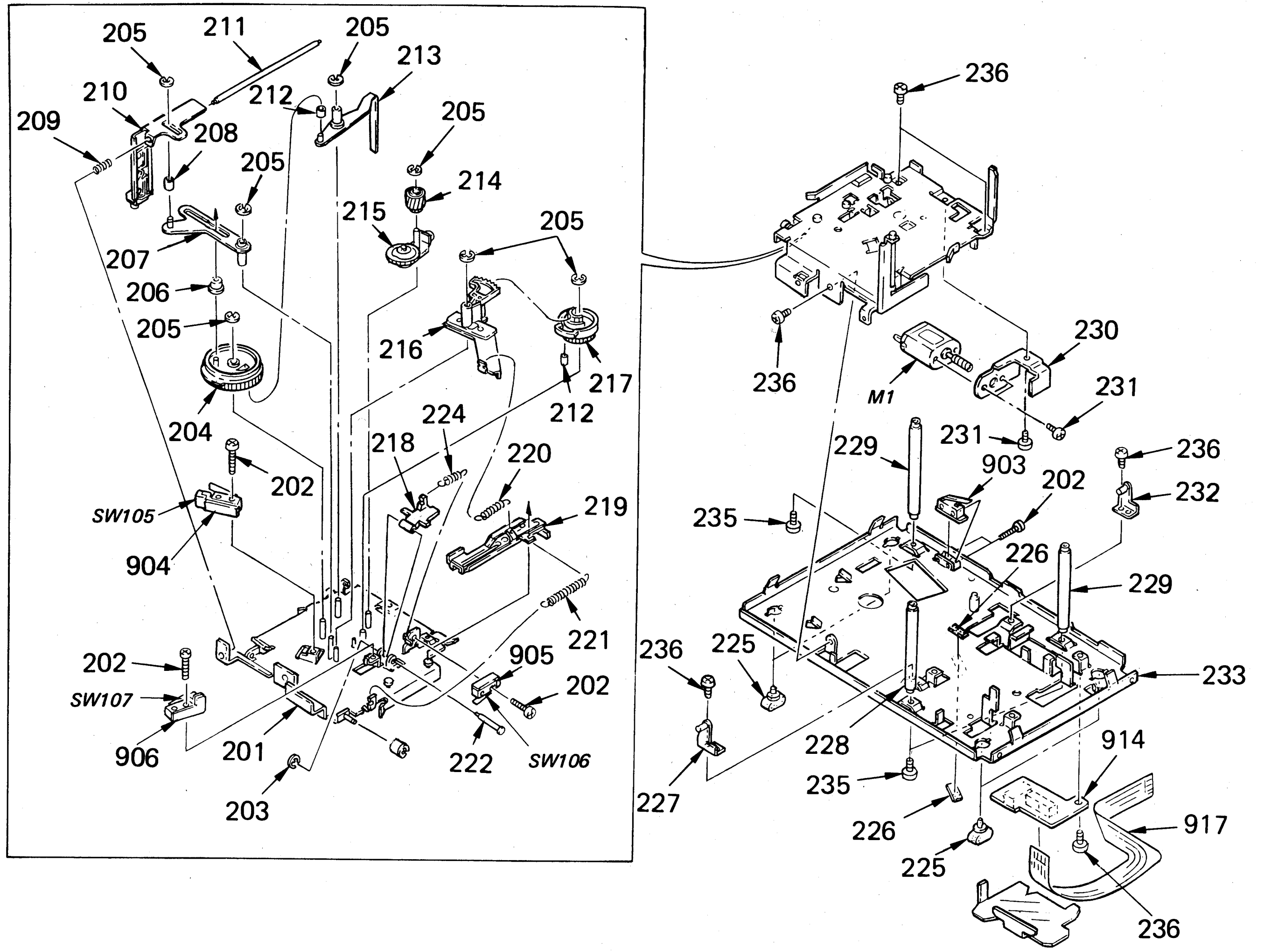
No.	Part No.	Description	Remarks
151	3-547-665-00	SPRING, TENSION	
152	7-624-102-04	STOP RING 1.5, TYPE -E	
153	3-310-958-00	WASHER (R)	
154	*3-343-706-01	LINK, DISK	
155	*3-331-925-01	BEARING, ROLLER STOPPER	
156	*X-3329-517-1	LEVER (F) ASSY, LINK	
157	3-323-231-02	ROLLER (LOWER)	
158	X-3329-518-1	ROLLER (UPPER) ASSY	
159	*3-329-552-01	SHAFT, SIDE ROLLER	
160	*X-3329-516-1	LEVER (B) ASSY, LINK	
161	X-3329-561-1	SHAFT (UPPER) ASSY, ROLLER	
162	3-331-924-01	GEAR (G), ROLLER	
163	3-331-914-01	GEAR, ROLLER 3 STEP	
164	3-331-957-07	GUIDE, DISK	

4-5.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SW105
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SW107
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SW106
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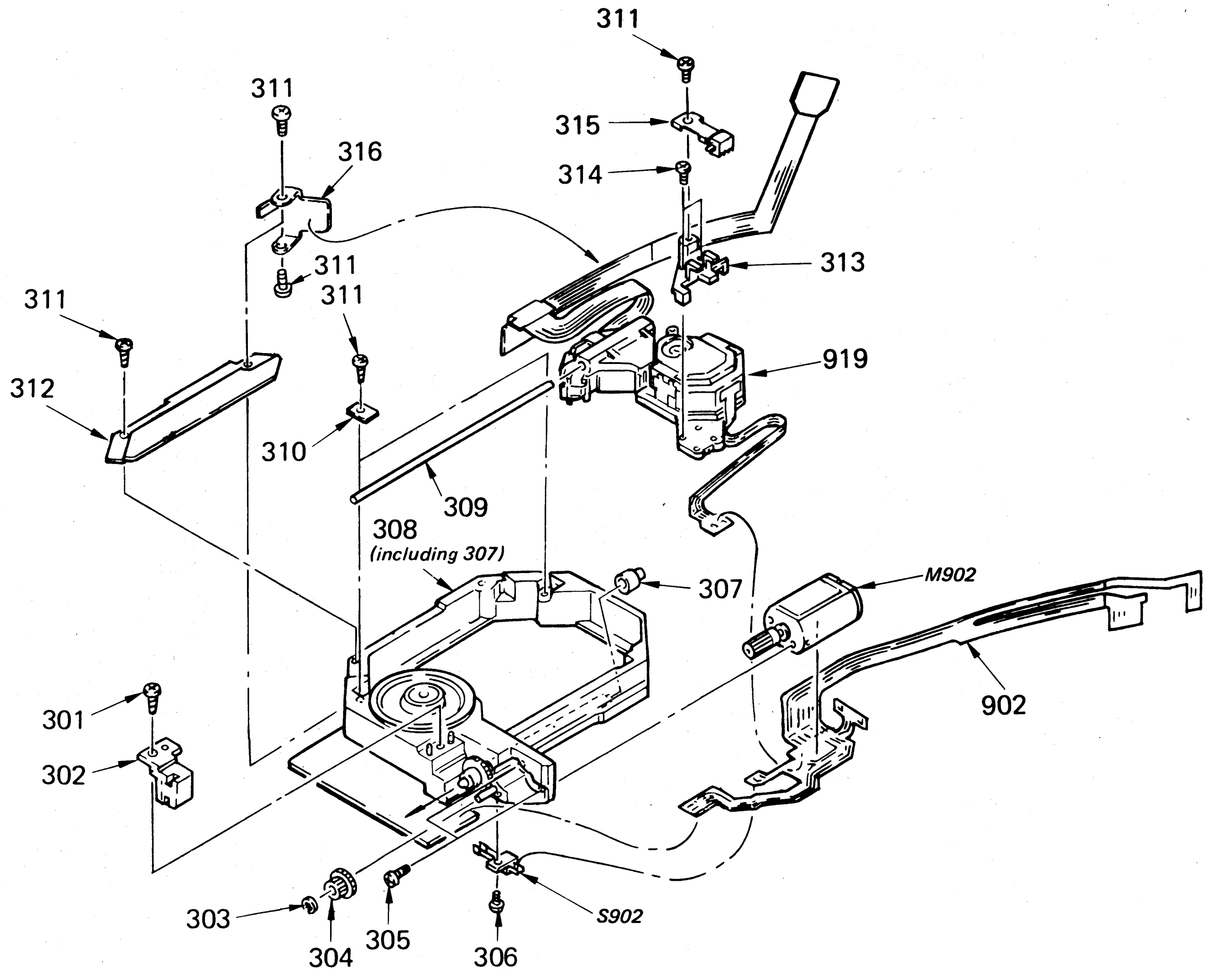
No.	Part No.	Description	Remarks
201	*X-3329-563-1	CHASSIS ASSY, PACK	
202	7-685-855-01	+BVTT 2X10 (S)	
203	7-624-102-04	STOP RING 1.5, TYPE -E	
204	X-3329-513-2	GEAR ASSY, CAM	
205	7-624-104-04	STOP RING 2.0, TYPE -E	
206	3-331-905-01	ROLLER (A)	
207	*X-3329-507-1	LEVER ASSY, LINEAR	
208	3-331-927-01	ROLLER, LINEAR LEVER	
209	3-568-315-01	SPRING, COMPRESSION	
210	X-3329-558-1	SLIDER ASSY, LINEAR	
211	3-331-904-01	SHAFT, LINEAR SLIDER	
212	3-329-580-01	ROLLER, CAM	
213	*X-3329-510-1	LEVER ASSY, SLIDER SET	
214	3-333-088-01	WHEEL, WORM	
215	X-3329-557-1	GEAR ASSY	
216	X-3329-511-5	LEVER ASSY, SOFT EJECT	
217	3-331-951-01	GEAR (2), EJECT CAM	
218	3-333-087-01	HOOK, BACK LOCK	
219	*3-331-913-04	EJECTOR (2), SOFT	
220	3-343-723-01	SPRING, TENSION	
221	3-634-191-XX	SPRING, TENSION	
222	*3-329-573-01	SHAFT, LOCK HOOK	
224	3-535-369-XX	SPRING, TENSION	
225	3-343-730-01	I DAMPER	
226	3-831-441-11	CUSHION	
227	*X-3329-555-1	OPENER ASSY (A)	
228	*3-333-084-01	SHAFT (B), FIXED, E	
229	*3-333-083-01	SHAFT (A), FIXED, E	
230	*3-343-715-01	PLATE, FIXED, MOTOR	
231	7-621-259-10	SCREW +P 2.6X3	
232	*X-3329-556-1	OPENER ASSY (B)	
233	*X-3329-568-1	CHASSIS ASSY, BOTTOM	
235	7-682-546-09	SCREW +B 3X5	
236	7-621-259-35	SCREW +BVTT 2.6X5 (S)	
903	*1-617-987-13	PC BOARD, COMMON	
904	*1-622-787-11	PC BOARD, LOT	
905	*1-622-788-11	PC BOARD, PS	
906	*1-622-789-11	PC BOARD, EJ	
914	*1-622-797-11	PC BOARD, TRANSLATION	
917	1-623-642-11	PC BOARD, TRANSLATION FLEXIBLE	
M1	X-3329-571-1	MOTOR ASSY, M1	
SW105	1-570-504-11	SWITCH, MICRO (LOT)	
SW106	1-570-504-11	SWITCH, MICRO (PST)	
SW107	1-570-504-11	SWITCH, MICRO (EJECT)	

4-6.



No.	Part No.	Description	Remarks
301	7-685-203-19	SCREW +K 2X5 TYPE2 NON-SLIT	
302	X-2640-611-1	RETAINER ASSY, THRUST	
303	3-321-813-01	WASHER, COTTER POLYETHYLENE	
304	2-640-625-01	GEAR (B)	
305	7-627-554-17	PRECISION SCREW +P 2X3.5 TYPE 3	
306	2-640-620-03	SCREW (B) (1.4X3), TAPPING	
307	2-640-629-02	RETAINER (C), THRUST	
308	X-3320-567-1	CHASSIS ASSY, MD SLED	307
309	*2-640-632-01	SHAFT, GUIDE	
310	2-640-645-01	RETAINER, GUIDE SHAFT	
311	7-685-102-19	SCREW +P 2X4 TYPE2 NON-SLIT	
312	2-640-623-01	COVER, MD	
313	2-640-638-01	BEARING, FEED GUIDE	
314	7-627-852-17	+P 1.7X4	
315	2-640-622-01	NUT, FEED	
316	3-343-741-01	PLATE, GROUND	
919	⚠.8-848-067-01	PICKUP, OPTICS KSS-160B	
920	1-621-406-11	PC BOARD, MOTOR FLEXIBLE	
M902	X-3320-568-1	MOTOR ASSY, SLED	
S902	1-554-938-11	SWITCH, LEAF (LIMIT)	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
901	*A-3265-015-A	MOUNTED PCB, JACK			
902	*A-3265-016-A	MOUNTED PCB, RF			
903	*1-617-987-13	PC BOARD, COMMON			
904	*1-622-787-11	PC BOARD, LOT			
905	*1-622-788-11	PC BOARD, PS			
906	*1-622-789-11	PC BOARD, EJ			
907	*1-622-790-11	PC BOARD, MI			
908	*1-622-791-11	PC BOARD, CB			
909	*1-622-792-11	PC BOARD, DPT			
910	*1-622-793-11	PC BOARD, EHS			
911	*1-622-794-11	PC BOARD, DOE			
912	*1-622-795-11	PC BOARD, LED			
913	*1-622-796-11	PC BOARD, EJECT			
914	*1-622-797-11	PC BOARD, TRANSLATION			
915	1-623-640-11	PC BOARD, MD FLEXIBLE			
916	1-623-641-11	PC BOARD, RF FLEXIBLE			
917	1-623-642-11	PC BOARD, TRANSLATION FLEXIBLE			
918	1-559-439-11	CORD (WITH CONNECTOR)			
919	⚠.8-848-067-01	PICKUP, OPTICS KSS-160B			
920	1-621-406-11	PC BOARD, MOTOR FLEXIBLE			
C1	1-136-159-00	FILM	0.033MF	5%	50V
C2	1-123-661-00	ELECT	100MF	20%	6.3V
C3	1-163-078-11	CERAMIC CHIP	0.033MF	10%	25V
C4	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C5	1-123-661-00	ELECT	100MF	20%	6.3V
C6	1-126-154-11	ELECT	47MF	20%	6.3V
C7	1-124-442-00	ELECT	330MF	20%	6.3V
C8	1-163-062-00	CERAMIC CHIP	0.018MF	10%	50V
C9	1-123-661-00	ELECT	100MF	20%	6.3V
C10	1-124-465-00	ELECT	0.47MF	20%	50V
C11	1-163-059-00	CERAMIC MELF	0.01MF	20%	16V
C12	1-163-062-00	CERAMIC CHIP	0.018MF	10%	50V
C13	1-163-213-00	CERAMIC MELF	0.0022MF	20%	16V
C14	1-136-165-00	FILM	0.1MF	5%	50V
C15	1-136-165-00	FILM	0.1MF	5%	50V
C16	1-124-442-00	ELECT	330MF	20%	6.3V
C17	1-123-661-00	ELECT	100MF	20%	6.3V
C18	1-163-181-00	CERAMIC MELF	100PF	10%	50V
C19	1-126-162-11	ELECT	3.3MF	20%	35V
C20	1-136-165-00	FILM	0.1MF	5%	50V
C21	1-135-165-00	FILM	0.1MF	5%	50V
C22	1-163-181-00	CERAMIC MELF	100PF	10%	50V
C23	1-136-165-00	FILM	0.1MF	5%	50V
C24	1-136-162-00	FILM	0.056MF	5%	50V
C25	1-124-257-00	ELECT	2.2MF	20%	50V
C26	1-163-076-00	CERAMIC CHIP	0.068MF		50V
C27	1-123-661-00	ELECT	100MF	20%	6.3V
C28	1-123-661-00	ELECT	100MF	20%	6.3V
C29	1-127-482-00	ELECT(SOLID)	10MF	20%	6.3V
C30	1-163-063-00	CERAMIC CHIP	0.022MF	10%	50V
C31	1-163-055-00	CERAMIC MELF	0.0047MF	20%	16V
C32	1-163-078-11	CERAMIC CHIP	0.033MF	10%	25V
C33	1-124-465-00	ELECT	0.47MF	20%	50V
C34	1-126-154-11	ELECT	47MF	20%	6.3V
C35	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C37	1-123-611-00	ELECT	1MF	20%	50V
C38	1-123-611-00	ELECT	1MF	20%	50V
C39	1-127-489-00	ELECT(SOLID)	10MF	20%	6.3V
C40	1-163-169-00	CERAMIC MELF	33PF	5%	50V
C41	1-163-169-00	CERAMIC MELF	33PF	5%	50V
C47	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C48	1-124-442-00	ELECT	330MF	20%	6.3V
C49	1-123-661-00	ELECT	100MF	20%	6.3V
C50	1-127-482-00	ELECT(SOLID)	10MF	20%	6.3V
C51	1-126-131-11	ELECT	1200MF	20%	6.3V
C52	1-126-131-11	ELECT	1200MF	20%	6.3V
C53	1-124-442-00	ELECT	330MF	20%	6.3V
C55	1-162-352-00	CERAMIC MELF	4.7PF	10%	50V
C56	1-162-352-00	CERAMIC MELF	4.7PF	10%	50V
C57	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C58	1-123-611-00	ELECT	1MF	20%	50V
C101	1-136-165-00	FILM	0.1MF	5%	50V
C102	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C103	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C104	1-163-179-00	CERAMIC MELF	82PF	10%	50V
C105	1-136-163-00	FILM	0.068MF	5%	50V
C106	1-126-157-11	ELECT	10MF	20%	16V
C107	1-126-157-11	ELECT	10MF	20%	16V
C201	1-136-165-00	FILM	0.1MF	5%	50V
C202	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C203	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C204	1-163-179-00	CERAMIC MELF	82PF	10%	50V
C205	1-136-163-00	FILM	0.068MF	5%	50V
C206	1-126-157-11	ELECT	10MF	20%	16V
C207	1-126-157-11	ELECT	10MF	20%	16V
C301	1-124-442-00	ELECT	330MF	20%	6.3V
C302	1-123-661-00	ELECT	100MF	20%	6.3V
C303	1-123-661-00	ELECT	100MF	20%	6.3V
C304	1-123-661-00	ELECT	100MF	20%	6.3V

Ref.No.	Part No.	Description			
C305	1-123-661-00	ELECT	100MF	20%	6.3V
C501	1-136-165-00	FILM	0.1MF	5%	50V
C502	1-136-165-00	FILM	0.1MF	5%	50V
C503	1-124-455-00	ELECT	100MF	20%	16V
C505	1-163-055-00	CERAMIC MELF	0.0047MF	20%	16V
C506	1-126-157-11	ELECT	10MF	20%	6.3V
C507	1-124-225-00	ELECT	100MF	20%	6.3V
C508	1-163-063-00	CERAMIC MELF	0.022MF		25V
C511	1-124-255-00	ELECT	1MF	20%	50V
C512	1-124-465-00	ELECT	0.47MF	20%	50V
C513	1-136-165-00	FILM	0.1MF	5%	50V
C542	1-124-455-00	ELECT	100MF	20%	16V
C543	1-136-165-00	FILM	0.1MF	5%	50V
C546	1-127-489-00	ELECT(SOLID)	10MF	20%	6.3V
C547	1-125-486-11	DOUBLE LAYERS	220MF		5.5V
C548	1-136-165-00	FILM	0.1MF	5%	50V
C549	1-124-229-00	ELECT	33MF	20%	6.3V
C551	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C552	1-136-165-00	FILM	0.1MF	5%	50V
C701	1-136-165-11	FILM	0.1MF	5%	50V
C703	1-124-255-00	ELECT	1MF	20%	50V
C705	1-163-063-00	CERAMIC MELF	0.022MF		25V
C706	1-126-247-11	ELECT	560MF	20%	6.3V
C707	1-126-247-11	ELECT	560MF	20%	6.3V
C710	1-124-119-00	ELECT	330MF	20%	16V
C718	1-126-157-11	ELECT	10MF	20%	6.3V
C719	1-124-229-00	ELECT	33MF	20%	6.3V
C720	1-124-755-00	ELECT	3300MF	20%	16V
C721	1-163-063-00	CERAMIC MELF	0.022MF		25V
CNJ1	*1-566-776-11	SOCKET, CONNECTOR 12P			
CNJ2	*1-563-912-11	SOCKET, CONNECTOR 4P			
CNJ3	*1-563-913-11	SOCKET, CONNECTOR 8P			
CNJ4	*1-566-887-11	SOCKET, CONNECTOR 18P			
CNJ401	*1-566-887-11	SOCKET, CONNECTOR 18P			
CNJ402	*1-566-888-11	SOCKET, CONNECTOR 10P			
CNJ501	1-566-907-11	PIN, CONNECTOR 18P			
CNJ502	*1-566-887-11	SOCKET, CONNECTOR 18P			
CNJ503	*1-566-887-11	SOCKET, CONNECTOR 18P			
CNJ504	*1-563-912-11	SOCKET, CONNECTOR 4P			
CNP1	*3-333-067-01	TAG			
CNP401	*1-564-001-11	PIN, CONNECTOR 2P			
CNP402	*1-564-001-11	PIN, CONNECTOR 2P			
CNP403	*1-564-001-81	PIN, CONNECTOR 2P			
CNP404	*1-564-002-00	PIN, CONNECTOR 3P			
CNP405	*1-564-002-00	PIN, CONNECTOR 3P			
CNP406	*1-564-005-51	PIN, CONNECTOR 6P			

Ref.No.	Part No.	Description
IC502	8-759-940-45	IC S-8054HN-CB
IC503	8-757-991-00	IC CX-7991
IC505	8-759-112-05	IC UPD7508HG-593-22
IC507	8-759-802-32	IC LB1649
JW550	1-249-366-11	CARBON MELF 0 5% 1/5W
L1	1-410-320-11	INDUCTOR 2.2UH
L2	1-410-320-11	INDUCTOR 2.2UH
L3	1-410-320-11	INDUCTOR 2.2UH
L4	1-410-316-11	INDUCTOR 1UH
L7	1-410-196-11	INDUCTOR CHIP 2.2UH
L501	1-410-320-11	INDUCTOR 2.2UH
L504	1-410-320-11	INDUCTOR 2.2UH
L505	1-410-320-11	INDUCTOR 2.2UH
L506	1-410-320-11	INDUCTOR 2.2UH
L507	1-410-320-11	INDUCTOR 2.2UH
M1	X-3329-571-1	MOTOR ASSY, M1 (EJECT/LEVER OUT)
M2	X-3329-560-1	MOTOR ASSY, M2 (SAVE/LOAD)
M3	1-541-309-11	MOTOR, L (RF-370C)(ELEVATOR UP/DOWN)
M902	X-3320-568-1	MOTOR ASSY, SLED
Q1	8-729-804-42	TRANSISTOR 2SB1122-T
Q2	8-729-804-42	TRANSISTOR 2SB1122-T
Q3	8-729-808-02	TRANSISTOR 2SD1622
Q4	8-729-804-42	TRANSISTOR 2SB1122-T
Q5	8-729-808-02	TRANSISTOR 2SD1622
Q6	8-729-901-00	TRANSISTOR DTC124EK
Q8	8-729-100-66	TRANSISTOR 2SC1623
Q9	8-729-900-53	TRANSISTOR DTC114EK
Q10	8-729-901-01	TRANSISTOR DTC144EK
Q101	8-729-201-04	TRANSISTOR 2SC2878
Q102	8-729-201-04	TRANSISTOR 2SC2878
Q201	8-729-201-04	TRANSISTOR 2SC2878
Q202	8-729-201-04	TRANSISTOR 2SC2878
Q301	8-729-901-05	TRANSISTOR DTA124EK
Q302	8-729-901-00	TRANSISTOR DTC124EK
Q303	8-729-901-05	TRANSISTOR DTA124EK
Q304	8-729-901-00	TRANSISTOR DTC124EK
Q401	8-729-110-21	TRANSISTOR PH102
Q402	8-729-110-21	TRANSISTOR PH102
Q403	8-729-906-43	TRANSISTOR GP-1S03
Q502	8-729-100-76	TRANSISTOR 2SA812
Q505	8-729-100-76	TRANSISTOR 2SA812
Q506	8-729-100-76	TRANSISTOR 2SA812
Q511	8-729-901-05	TRANSISTOR DTA124EK
Q512	8-729-901-00	TRANSISTOR DTC124EK
Q513	8-729-901-05	TRANSISTOR DTA124EK
Q514	8-729-100-66	TRANSISTOR 2SC1623
Q515	8-729-901-05	TRANSISTOR DTA124EK

Ref.No.	Part No.	Description
CNP407	*1-564-001-11	PIN, CONNECTOR 2P
CNP408	*1-564-012-00	PIN, CONNECTOR 2P
CNP409	*1-564-001-11	PIN, CONNECTOR 2P
CNP410	*1-564-001-11	PIN, CONNECTOR 2P
CNP411	*1-564-012-00	PIN, CONNECTOR 2P
CNP412	*1-564-013-00	PIN, CONNECTOR 3P
D1	8-719-801-67	DIODE DLS1585
D301	8-719-801-67	DIODE DLS1585
D302	8-719-100-05	DIODE 1S2837
D401	8-719-812-31	DIODE TLR123
D402	8-719-812-31	DIODE TLR123
D403	8-719-100-03	DIODE 1S2835
D404	8-719-100-03	DIODE 1S2835
D405	8-719-100-03	DIODE 1S2835
D501	8-719-110-12	DIODE RD9.1ES-B1
D502	8-719-109-85	DIODE RD5.1ES-B2
D503	8-719-100-03	DIODE 1S2835
D505	8-719-100-03	DIODE 1S2835
D507	8-719-109-85	DIODE RD5.1ES-B2
D508	8-719-911-19	DIODE 1SS119
D509	8-719-110-35	DIODE RD13ES-B1
D511	8-719-109-85	DIODE RD5.1ESB2
D512	8-719-109-85	DIODE RD5.1ES-B2
D513	8-719-109-85	DIODE RD5.1ES-B2
D514	8-719-109-85	DIODE RD5.1ES-B2
D515	8-719-109-85	DIODE RD5.1ES-B2
D518	8-719-911-19	DIODE 1SS119
D703	8-719-801-67	DIODE DLS1585
D704	8-719-910-62	DIODE HZ6A2L
D705	8-719-100-38	DIODE RD6.2EB2
D706	8-719-109-85	DIODE RD5.1ES-B2
D707	8-719-110-48	DIODE RD18ES-B1
D708	8-719-801-67	DIODE DLS1585
D709	8-719-109-85	DIODE RD5.1ES-B2
D710	8-719-801-67	DIODE DLS1585
DD1	1-464-848-11	CONVERTER UNIT, DC-DC
IC1	8-759-937-87	IC CXA1081Q
IC2	8-752-031-61	IC CXA1082AQ
IC3	8-752-322-32	IC CXD1130Q
IC4	8-759-942-55	IC MB88505H-530M
IC5	8-759-940-89	IC L272M
IC6	8-752-320-44	IC CXK5816M-10L
IC301	8-759-805-33	IC CXD1161
IC302	8-759-802-48	IC LA6462M
IC303	8-759-802-48	IC LA6462M
IC501	8-759-802-32	IC LB1649

Ref.No.	Part No.	Description			
Q516	8-729-100-66	TRANSISTOR 2SC1623			
Q517	8-729-901-05	TRANSISTOR DTA124EK			
Q518	8-729-901-00	TRANSISTOR DTC124EK			
Q519	8-729-901-00	TRANSISTOR DTC124EK			
Q520	8-729-901-05	TRANSISTOR DTA124EK			
Q522	8-729-901-05	TRANSISTOR DTA124EK			
Q523	8-729-100-66	TRANSISTOR 2SC1623			
Q524	8-729-901-05	TRANSISTOR DTA124EK			
Q704	8-729-901-00	TRANSISTOR DTC124EK			
Q705	8-729-805-20	TRANSISTOR 2SB1202			
Q706	8-729-100-66	TRANSISTOR 2SC1623			
Q707	8-729-808-02	TRANSISTOR 2SD1622			
Q710	8-729-900-53	TRANSISTOR DTC114EK			
R1	1-249-433-11	CARBON MELF	22K	5%	1/5W
R2	1-249-429-11	CARBON MELF	10K	5%	1/5W
R3	1-249-086-00	CARBON MELF	11	5%	1/5W
R4	1-249-086-00	CARBON MELF	11	5%	1/5W
R5	1-249-417-11	CARBON MELF	1K	5%	1/5W
R6	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R7	1-215-448-00	CARBON MELF	13K	5%	1/5W
R8	1-249-441-11	CARBON MELF	100K	5%	1/5W
R9	1-215-446-00	CARBON MELF	11K	5%	1/5W
R10	1-215-485-00	CARBON MELF	470K	5%	1/5W
R11	1-215-473-00	CARBON MELF	150K	5%	1/5W
R12	1-249-441-11	CARBON MELF	100K	5%	1/5W
R13	1-249-441-11	CARBON MELF	100K	5%	1/5W
R14	1-215-481-00	CARBON MELF	330K	5%	1/5W
R15	1-249-439-11	CARBON MELF	68K	5%	1/5W
R16	1-215-471-00	CARBON MELF	120K	5%	1/5W
R17	1-215-486-00	CARBON MELF	510K	5%	1/5W
R18	1-249-428-11	CARBON MELF	8.2K	5%	1/5W
R19	1-215-479-00	CARBON MELF	270K	5%	1/5W
R20	1-249-439-11	CARBON MELF	68K	5%	1/5W
R21	1-249-423-11	CARBON MELF	3.3K	5%	1/5W
R22	1-249-429-11	CARBON MELF	10K	5%	1/5W
R23	1-249-441-11	CARBON MELF	100K	5%	1/5W
R24	1-215-452-00	CARBON MELF	20K	5%	1/5W
R25	1-215-493-00	CARBON MELF	1M	5%	1/5W
R27	1-249-429-11	CARBON MELF	10K	5%	1/5W
R28	1-249-429-11	CARBON MELF	10K	5%	1/5W
R29	1-249-441-11	CARBON MELF	100K	5%	1/5W
R38	1-215-454-00	CARBON MELF	24K	5%	1/5W
R39	1-249-429-11	CARBON MELF	10K	5%	1/5W
R40	1-215-396-00	CARBON MELF	91	5%	1/5W
R50	1-249-429-11	CARBON MELF	10K	5%	1/5W
R51	1-249-387-11	CARBON MELF	3.3	5%	1/5W

Ref.No.	Part No.	Description			
R52	1-249-431-11	CARBON MELF	15K	5%	1/5W
R53	1-249-387-11	CARBON MELF	3.3	5%	1/5W
R54	1-249-393-11	CARBON MELF	10	5%	1/5W
R55	1-249-417-11	CARBON MELF	1K	5%	1/5W
R56	1-249-417-11	CARBON MELF	1K	5%	1/5W
R58	1-249-429-11	CARBON MELF	10K	5%	1/5W
R100	1-249-429-11	CARBON MELF	10K	5%	1/5W
R101	1-216-288-11	METAL GLAZE	5.6M	5%	1/8W
R102	1-249-426-11	CARBON MELF	5.6K	5%	1/5W
R103	1-249-433-11	CARBON MELF	22K	5%	1/5W
R104	1-249-437-11	CARBON MELF	47K	5%	1/5W
R105	1-249-431-11	CARBON MELF	15K	5%	1/5W
R106	1-249-413-11	CARBON MELF	470	5%	1/5W
R107	1-249-417-11	CARBON MELF	1K	5%	1/5W
R108	1-249-408-11	CARBON MELF	180	5%	1/5W
R109	1-215-485-00	CARBON MELF	470K	5%	1/5W
R110	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R111	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R112	1-249-429-11	CARBON MELF	10K	5%	1/5W
R200	1-249-429-11	CARBON MELF	10K	5%	1/5W
R201	1-216-288-11	METAL GLAZE	5.6M	5%	1/8W
R202	1-249-426-11	CARBON MELF	5.6K	5%	1/5W
R203	1-249-433-11	CARBON MELF	22K	5%	1/5W
R204	1-249-437-11	CARBON MELF	47K	5%	1/5W
R205	1-249-431-11	CARBON MELF	15K	5%	1/5W
R206	1-249-413-11	CARBON MELF	470	5%	1/5W
R207	1-249-417-11	CARBON MELF	1K	5%	1/5W
R208	1-249-408-11	CARBON MELF	180	5%	1/5W
R209	1-215-485-00	CARBON MELF	470K	5%	1/5W
R210	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R211	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R212	1-249-429-11	CARBON MELF	10K	5%	1/5W
R301	1-249-412-11	CARBON MELF	390	5%	1/5W
R303	1-249-441-11	CARBON MELF	100K	5%	1/5W
R304	1-249-441-11	CARBON MELF	100K	5%	1/5W
R305	1-249-417-11	CARBON MELF	1K	5%	1/5W
R306	1-249-417-11	CARBON MELF	1K	5%	1/5W
R401	1-249-409-11	CARBON	220	5%	1/4W
R402	1-249-409-11	CARBON	220	5%	1/4W
R403	1-216-182-00	METAL CHIP	220	5%	1/8W
R503	1-249-429-11	CARBON MELF	10K	5%	1/5W
R505	1-249-429-11	CARBON MELF	10K	5%	1/5W
R506	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R507	1-249-429-11	CARBON MELF	10K	5%	1/5W
R508	1-249-429-11	CARBON MELF	10K	5%	1/5W
R516	1-249-429-11	CARBON MELF	10K	5%	1/5W
R518	1-249-429-11	CARBON MELF	10K	5%	1/5W
R519	1-249-429-11	CARBON MELF	10K	5%	1/5W
R520	1-249-429-11	CARBON MELF	10K	5%	1/5W
R521	1-249-429-11	CARBON MELF	10K	5%	1/5W
R530	1-249-409-11	CARBON MELF	220	5%	1/5W
R531	1-249-417-11	CARBON MELF	1K	5%	1/5W
R532	1-215-493-00	CARBON MELF	1M	5%	1/5W

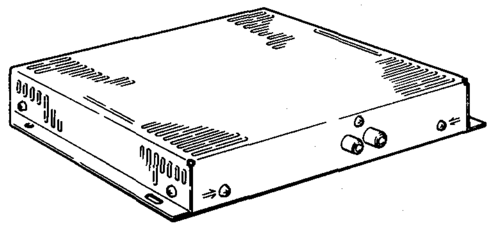
Ref.No.	Part No.	Description			
R533	1-249-429-11	CARBON MELF	10K	5%	1/5W
R534	1-249-429-11	CARBON MELF	10K	5%	1/5W
R535	1-249-429-11	CARBON MELF	10K	5%	1/5W
R536	1-249-429-11	CARBON MELF	10K	5%	1/5W
R537	1-249-429-11	CARBON MELF	10K	5%	1/5W
R540	1-249-437-11	CARBON MELF	47K	5%	1/5W
R541	1-249-429-11	CARBON MELF	10K	5%	1/5W
R542	1-249-429-11	CARBON MELF	10K	5%	1/5W
R543	1-249-417-11	CARBON	1K	5%	1/4W
R704	1-249-417-11	CARBON MELF	1K	5%	1/5W
R705	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R706	1-249-437-11	CARBON MELF	47K	5%	1/5W
R707	1-249-413-11	CARBON MELF	470	5%	1/5W
R708	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R709	1-249-417-11	CARBON MELF	1K	5%	1/5W
R710	1-249-437-11	CARBON MELF	47K	5%	1/5W
R711	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R713	1-214-792-00	METAL	1	1%	1/2W
RV1	1-228-995-00	RES, ADJ, CARBON 22K			
RV2	1-228-996-00	RES, ADJ, CARBON 47K			
RV3	1-228-995-00	RES, ADJ, CARBON 22K			
RV4	1-228-995-00	RES, ADJ, CARBON 22K			
RV5	1-228-991-00	RES, ADJ, CARBON 2.2K			
S902	1-554-938-11	SWITCH, LEAF (LIMIT)			
SW101	1-554-813-21	SWITCH, KEY BOARD (EJECT)			
SW102	1-570-503-11	SWITCH, MICRO (CBP)			
SW103	1-570-502-11	SWITCH, MICRO (M1)			
SW104	1-570-504-11	SWITCH, MICRO (HOME)			
SW105	1-570-504-11	SWITCH, MICRO (LOT)			
SW106	1-570-504-11	SWITCH, MICRO (PST)			
SW107	1-570-504-11	SWITCH, MICRO (EJECT)			
TH1	1-807-776-11	THERMISTOR ERT-D2FHJ802T			
TH2	1-807-776-11	THERMISTOR ERT-D2FHJ802T			
THP501	1-807-368-11	THERMISTOR PTH59F04BG222TS			
X2	1-567-820-11	VIBRATOR, CRYSTAL			
X501	1-567-775-11	VIBRATOR, CERAMIC			

ACCESSORY

3-343-733-01	CUSHION (LOWER)
3-343-734-01	CUSHION (UPPER)

STEREO POWER AMPLIFIER
〔XM-5B816〕

West Germany
Model



SPECIFICATIONS

Outputs	Speaker outputs (2 PIN connectors).
Inputs	Line inputs (phono jacks)
Speaker impedance	3.2 - 8 ohms
Maximum power output	30 watts per channel at 4 ohms* (2-channels driven) *Measured at 14.4 V
Power requirements	12 V DC car battery (negative ground)
Dimensions	Hide-away amplifier Approx. 178 × 30 × 135 mm (w/h/d) ($7\frac{1}{8} \times 1\frac{3}{16} \times 5\frac{3}{8}$ inches) not incl. projecting parts
Weight	Hide-away amplifier Approx. 0.8 kg (1 lb 12 oz)

FEATURES

The hide-away 2-channel power amplifier with a maximum power output of 30W per channel.

SERVICING NOTE

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

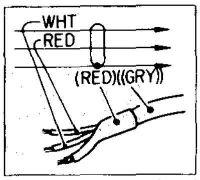
SECTION 1
DIAGRAMS

1-1. PRINTED WIRING BOARDS

- See page XM-3 for semiconductor location.

Note:

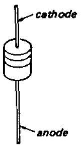
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

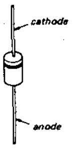
- ○— : parts extracted from the component side.

- **SEMICONDUCTOR LEAD LAYOUTS.**

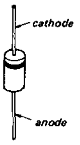
1SS119


cathode
anode

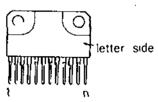
ERD31-04


cathode
anode

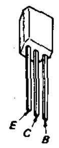
10E-2

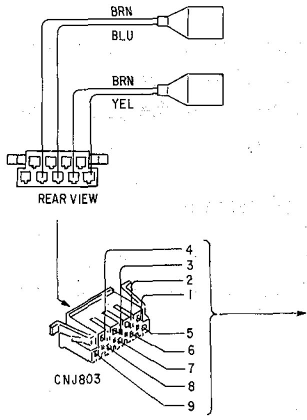

cathode
anode

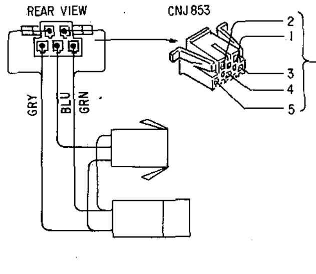
TA7250BP
TA7251BP


letter side
1
n

2SC634SP

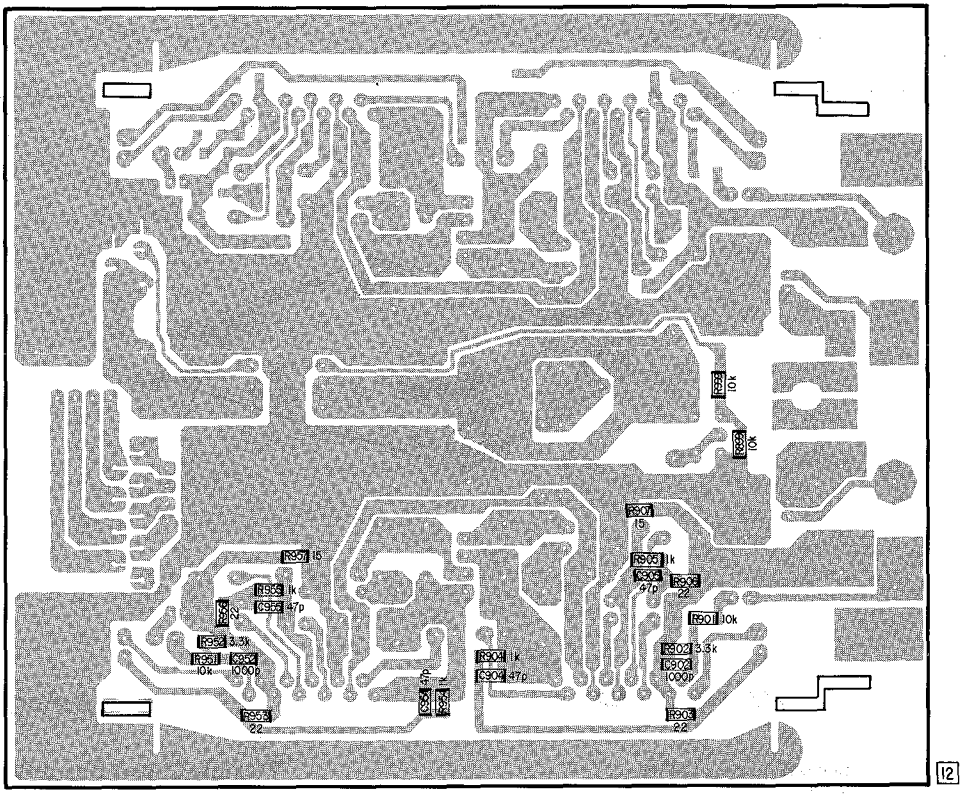



BRN
BLU
BRN
YEL
REAR VIEW
4
3
2
1
5
6
7
8
9
CNJ803

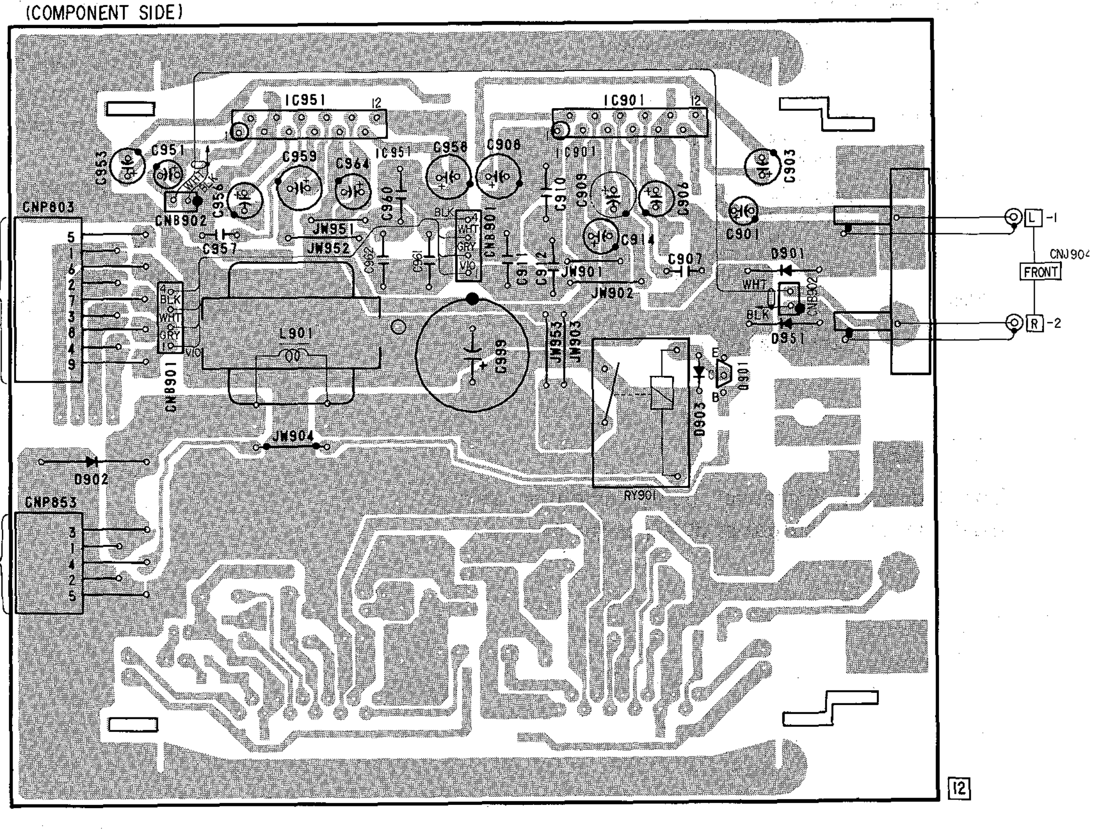

REAR VIEW
CNJ853
2
1
3
4
5
GRY
BLU
GRN

3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J

【POWER AMP BOARD】
(CONDUCTOR SIDE)


R957 15
R955 1k
C955 47p
R956 22
R952 3.3k
R951 10k
C952 1000p
R953 22
C954 47p
R954 1k
R904 1k
C904 47p
R907 15
R905 1k
C905 47p
R906 22
R901 10k
R902 3.3k
C902 1000p
R903 22
10k
10k
12

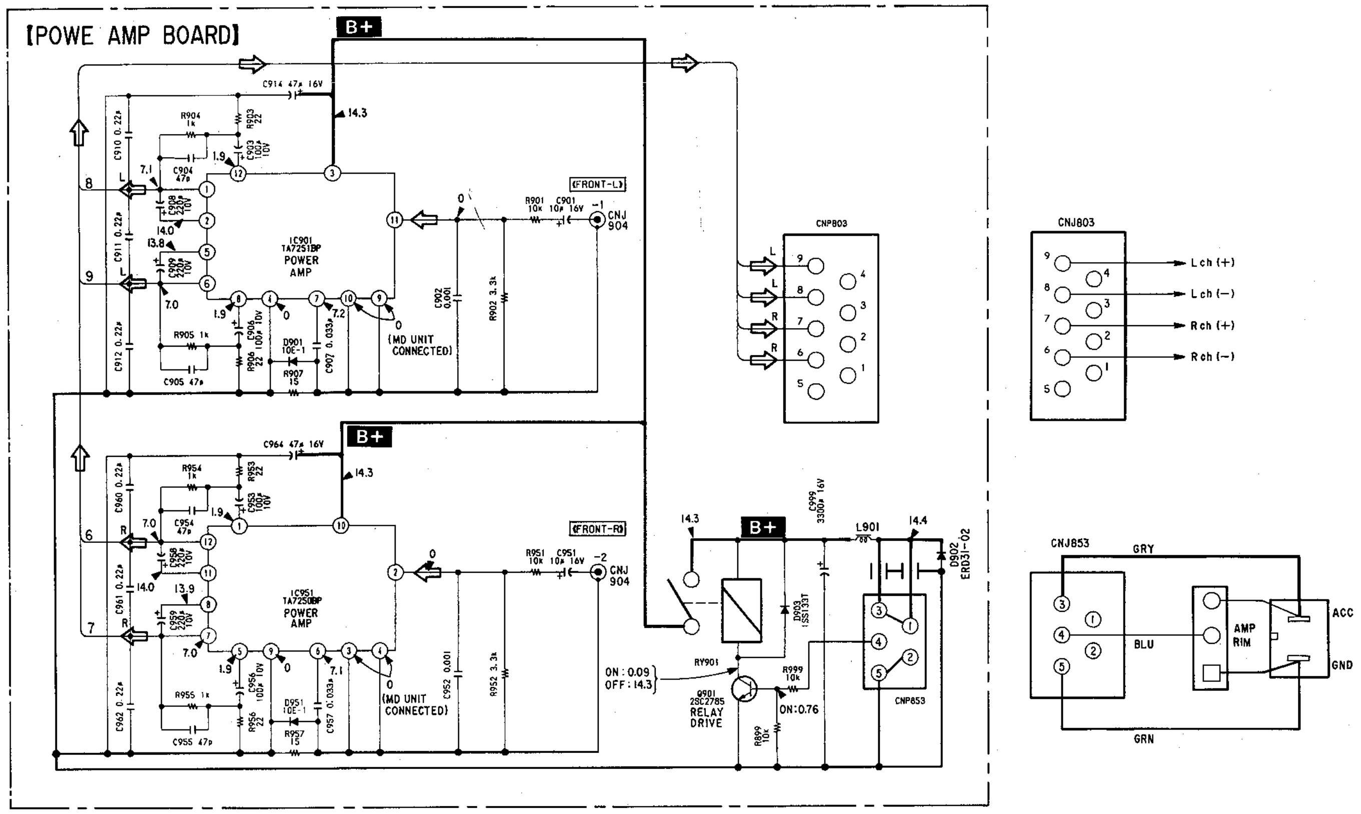
【POWER AMP BOARD】
(COMPONENT SIDE)


IC951
1
12
IC901
1
12
C953
C951
WHT
BLK
CN8902
C956
C959
C964
IC951
C958
C908
IC901
C910
C909
C906
C903
C901
CNP803
5
1
6
2
7
3
8
4
9
C957
JW951
JW952
C962
C960
C961
BLK
4
WHT
GRY
VIO
1
CN8901
C911
C912
JW901
C914
C907
JW902
D901
WHT
BLK
CNB902
D951
L -1
CNJ904
FRONT
R -2
4
BLK
WHT
GRY
1
VIO
CN8901
L901
C999
JW953
JW903
E
C
B
Q901
D903
RY901
JW904
D902
CNP853
3
1
4
2
5
12

- **Semiconductor Location**

Ref. No.	Location
D901	G-7
D902	H-3
D903	H-7
D951	H-7
IC901	F-6
IC951	F-4
Q901	H-7

1-2. SCHEMATIC DIAGRAM


[POWE AMP BOARD]
B+
C914 47μ 16V
14.3
R904 1k
R903 22
C903 100μ 10V
C904 47p
C910 0.22μ
C911 0.22μ
C912 0.22μ
C908 220μ 10V
C909 220μ 10V
IC901 TA7251BP POWER AMP
R905 1k
C905 47p
C906 100μ 10V
R906 22
D901 10E-1
R907 15
C907 0.033μ
(MD UNIT CONNECTED)
(FRONT-L)
R901 10k
C901 10μ 16V
CNJ 904
C902 0.001
R902 3.3k
CNP803
C964 47μ 16V
R954 1k
R953 22
C953 100μ 10V
C954 47p
C960 0.22μ
C961 0.22μ
C962 0.22μ
C958 220μ 10V
C959 220μ 10V
IC951 TA7250BP POWER AMP
R955 1k
C955 47p
C956 100μ 10V
R956 22
D951 10E-1
R957 15
C957 0.033μ
(FRONT-R)
R951 10k
C951 10μ 16V
C952 0.001
R952 3.3k
C999 3300μ 16V
L901
14.4
D902 ERD31-02
D903 1SS133T
RY901
ON: 0.09
OFF: 14.3
Q901 2SC2785 RELAY DRIVE
R999 10k
R899 10k
ON: 0.76
CNP853
CNJ803
Lch (+)
Lch (−)
Rch (+)
Rch (−)
CNJ853
GRY
BLU
GRN
AMP RIM
ACC
GND

Note:

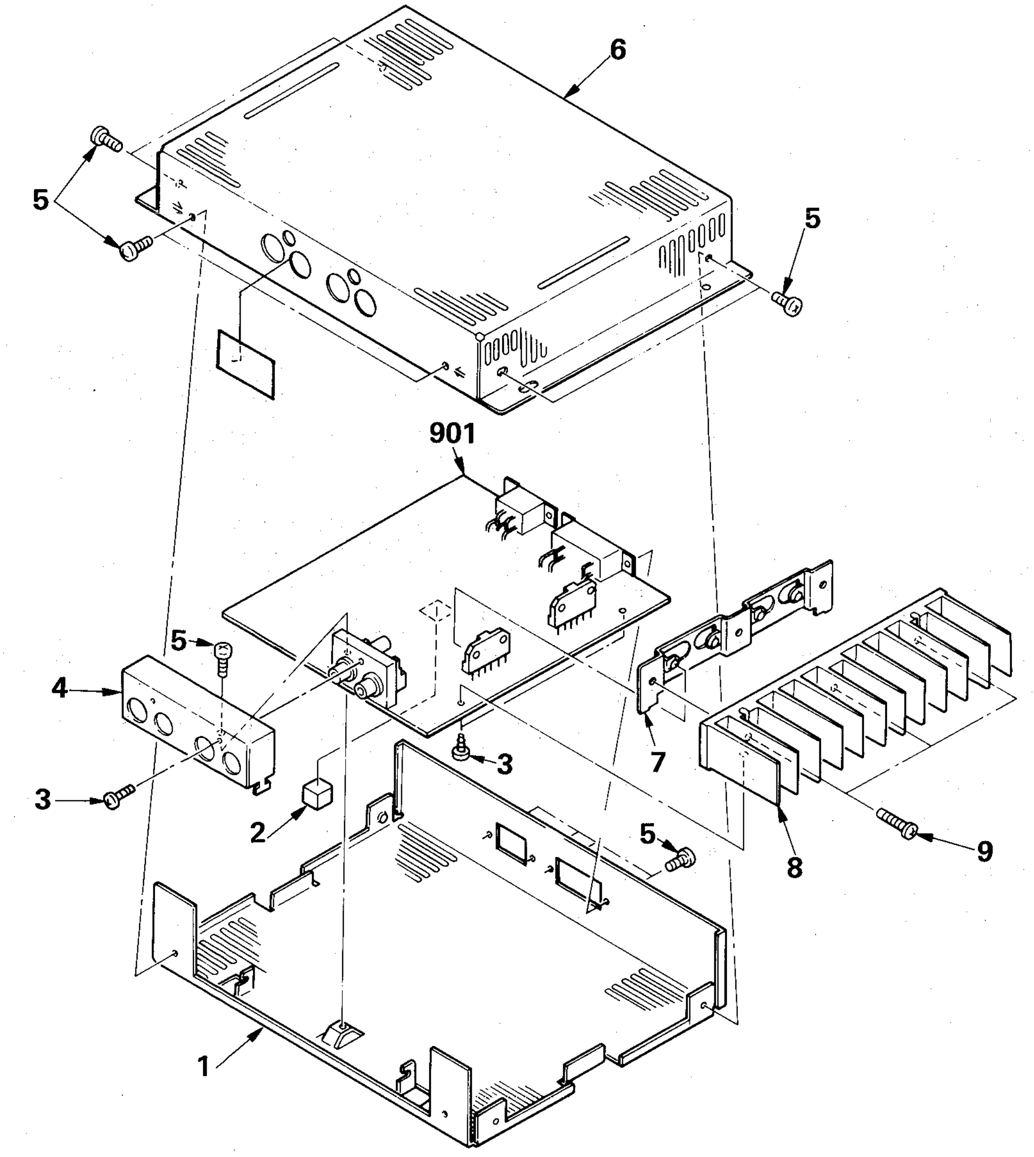
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- ━━ : B+bus.
- Power voltage is 14.4 V and fed with regulated dc power supply from ACC terminal.
- Voltage variations may be noted due to normal production tolerances.
- ⇨ : FM signal path.

SECTION 2

EXPLODED VIEW

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color


6
5
5
901
5
4
3
3
2
5
1
7
8
9

No.	Part No.	Description	Remarks
1	*3-342-243-01	CASE (LOWER)	
2	9-911-841-XX	CUSHION (B)	
3	7-685-646-79	SCREW +P 3X8 TYPE2 SLIT	
4	*3-342-223-01	BRACKET, JACK	
5	7-682-147-01	SCREW +PTT 3X6 (S)	
6	*3-342-242-01	CASE (UPPER)	
7	*3-339-415-01	BRACKET, IC	
8	*3-342-225-01	HEAT SINK	
9	7-682-550-04	SCREW +PTT 3X12 (S)	
901	*A-3216-600-A	MOUNTED PCB, POWER AMPLIFIER	

SECTION 3
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

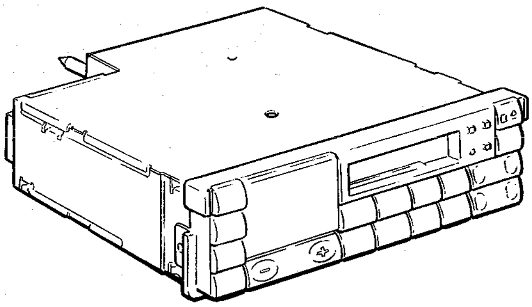
SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

Ref.No.	Part No.	Description			
901	*A-3216-600-A	MOUNTED PCB, POWER AMPLIFIER			
C901	1-126-157-11	ELECT	10MF	20%	16V
C902	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C903	1-124-443-00	ELECT	100MF	20%	10V
C904	1-163-173-00	CERAMIC MELF	47PF	5%	50V
C905	1-163-173-00	CERAMIC MELF	47PF	5%	50V
C906	1-124-443-00	ELECT	100MF	20%	10V
C907	1-130-489-00	MYLAR	0.033MF	5%	50V
C908	1-126-176-11	ELECT	220MF	20%	10V
C909	1-126-176-11	ELECT	220MF	20%	10V
C910	1-136-169-00	MYLAR	0.22MF	10%	50V
C911	1-136-169-00	MYLAR	0.22MF	10%	50V
C912	1-136-169-00	MYLAR	0.22MF	10%	50V
C914	1-124-477-11	ELECT	47MF	20%	16V
C951	1-126-157-11	ELECT	10MF	20%	16V
C952	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C953	1-124-443-00	ELECT	100MF	20%	10V
C954	1-163-173-00	CERAMIC MELF	47PF	5%	50V
C955	1-163-173-00	CERAMIC MELF	47PF	5%	50V
C956	1-124-443-00	ELECT	100MF	20%	10V
C957	1-130-489-00	MYLAR	0.033MF	5%	50V
C958	1-126-176-11	ELECT	220MF	20%	10V
C959	1-126-176-11	ELECT	220MF	20%	10V
C960	1-136-169-00	MYLAR	0.22MF	10%	50V
C961	1-136-169-00	MYLAR	0.22MF	10%	50V
C962	1-136-169-00	MYLAR	0.22MF	10%	50V
C964	1-124-477-11	ELECT	47MF	20%	16V
C999	1-124-887-00	ELECT	3300MF	20%	16V
CNJ904	*1-563-523-11	JACK, PIN 2P			
CNP803	1-566-467-11	CONNECTOR 9P			
CNP853	1-506-662-11	CONNECTOR 5P			

Ref.No.	Part No.	Description			
D901	8-719-200-02	DIODE 10E-2			
D902	8-719-931-04	DIODE ERD31-04			
D903	8-719-911-19	DIODE 1SS119			
D951	8-719-200-02	DIODE 10E-2			
IC901	8-759-208-64	IC TA7251BP			
IC951	8-759-208-60	IC TA7250BP			
L901	1-421-369-00	COIL, CHOKE			
Q901	8-729-600-27	TRANSISTOR 2SC634SP			
R901	1-249-429-11	CARBON MELF	10K	5%	1/5W
R902	1-249-423-11	CARBON MELF	3.3K	5%	1/5W
R903	1-249-397-11	CARBON MELF	22	5%	1/5W
R904	1-249-417-11	CARBON MELF	1K	5%	1/5W
R905	1-249-417-11	CARBON MELF	1K	5%	1/5W
R906	1-249-397-11	CARBON MELF	22	5%	1/5W
R907	1-249-395-11	CARBON MELF	15	5%	1/5W
R951	1-249-429-11	CARBON MELF	10K	5%	1/5W
R952	1-249-423-11	CARBON MELF	3.3K	5%	1/5W
R953	1-249-397-11	CARBON MELF	22	5%	1/5W
R954	1-249-417-11	CARBON MELF	1K	5%	1/5W
R955	1-249-417-11	CARBON MELF	1K	5%	1/5W
R956	1-249-397-11	CARBON MELF	22	5%	1/5W
R957	1-249-395-11	CARBON MELF	15	5%	1/5W
R999	1-249-429-11	CARBON MELF	10K	5%	1/5W
RY901	1-515-655-11	RELAY			

FM AM CASSETTE CAR STEREO (XR-5B816)

West Germany Model



Model Name Using Similar Mechanism	**XR-7300, XR-7301**
Tape Transport Mechanism Type	**MG-71-83**

SPECIFICATIONS

Cassette player section

Tape	Prerecorded tape cassette
Head	Playback head
Tape track	4-track 2-channel stereo
Frequency response	30-18,000 Hz
Signal-to-noise ratio (A-weighted) (Dolby NR off)	58 dB
Dolby NR effect	More than 18 dB (C-type, CCIR/ARM)
Wow and flutter	0.15% (WRMS)
Crosstalk	Between channels: better than 30 dB

Tuner section

System	FM/AM superheterodyne tuner Computerized quartz-locked synthesizer system

FM tuner section

Tuning range	87.5-108.0 MHz
Antenna terminal	FM/AM external antenna connector FM/AM power antenna relay control lead
Intermediate frequency	10.7 MHz
Usable sensitivity	11.0 dBf (75 ohms)
Sensitivity at 50 dB quieting	15 dBf (75 ohms)
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 70 dB (mono)
Harmonic distortion at 1 kHz	0.5% (stereo), 0.3% (mono)
Separation	40 dB at 1 kHz
Frequency response	30-15,000 Hz
Capture ratio	2.0 dB

AM tuner section

Tuning range	531-1,602 kHz
Antenna terminal	FM/AM external antenna connector FM/AM power antenna relay control lead
Intermediate frequency	450 kHz
Sensitivity	35 μV

General

Tone controls	Bass ±10 dB at 100 Hz Treble ±10 dB at 10 kHz
Loudness (at −30 dB)	+6 dB at 100 Hz +5 dB at 10 kHz
Output lead	Line output lead (LINE OUT FRONT)
Input/output connector	13-pin DIN connector for the optional Sony CD player

– Continued on page 2 –

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 178 × 50 × 145 mm (w/h/d) (7⅛ × 2 × 5¾ inches) not incl. projecting parts and controls
Weight	Approx. 2.1 kg (4 lb 10 oz)

FEATURES

Tuner section

- Memory preset tuning function allows you to store stations in memory.
- Automatic memory function for quick and easy memory presetting.

Cassette deck section

- The Automatic Music Sensor (AMS) function locates a selection as far ahead or as far back as 6 selections.
- The C-type Dolby NR system is incorporated as well as the B-type Dolby NR system.

Traffic information reception

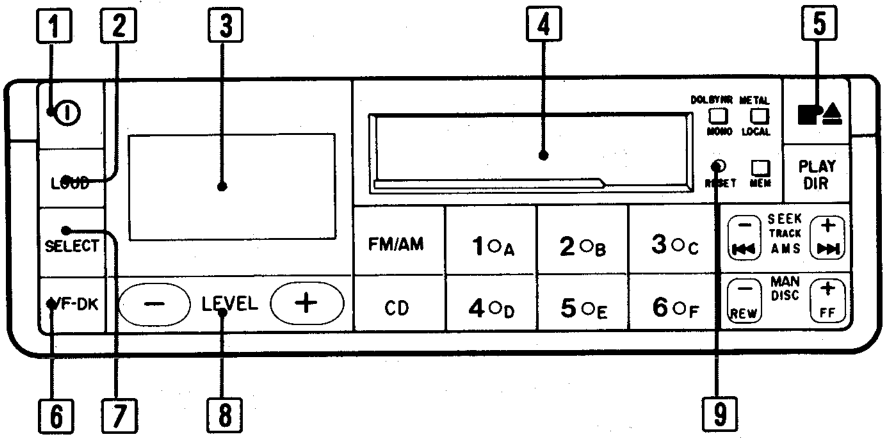
- Search function to quickly tune in a traffic information broadcasting station.
- Memory function to easily recall a traffic information station.
- Traffic information stand-by function for receiving a station automatically when it broadcasts a traffic information.

General

- Slide-out anti-theft chassis allows you to take the main unit away with you when you leave your car.
- Auxiliary input for enhanced system using optional Sony car audio.
- Fully electronic volume, bass, treble, balance control with easy-to-read LCD indication.

SECTION 1
OUTLINE

1-1. LOCATION AND FUCTION OF CONTROLS



1 ⏻ (power) switch
Press to turn on and off the unit.

2 LOUD (loudness) button
Press to reinforce bass or treble especially when listening at low volume.
The LOUD indicator appears.
To disengage the button, press it again.

3 Display window

4 Cassette insertion door

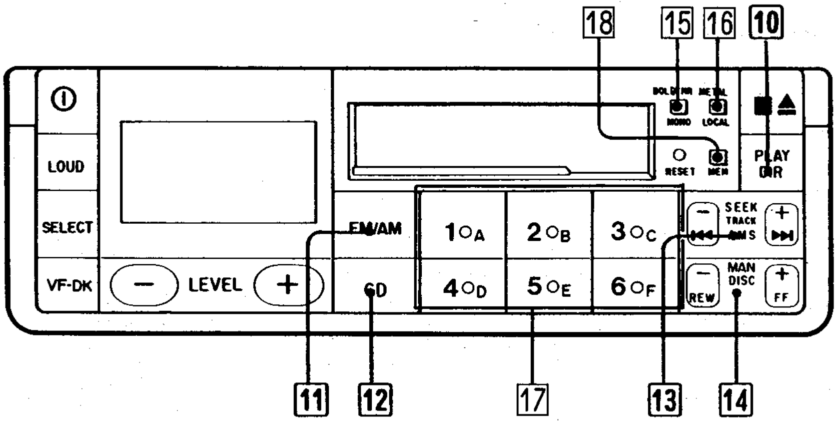
5 ■ ⏏ (stop/eject) button
When pressed once during tape playback, the tape stops.
When pressed again, the tape is ejected.
When pressed once during radio reception, the tape is ejected.
When kept pressed for more than 1 second during tape playback, the tape stops and is ejected.

6 VF-DK button
During radio reception, press to tune in only traffic information stations.
During tape playback, press so that the unit stands by for receiving a traffic information.

7 SELECT button
Press to select the sound control mode—volume, bass, treble, balance.
In accordance with the selected mode, the VOL (volume), BAS (bass), TRE (treble), BAL (balance) indicator appears.
Normally the VOL indicator is displayed.

8 LEVEL button
Normally this button operates as a volume control.
Press it to adjust the sound level and quality selected with the SELECT button.

9 RESET button
Press this button when no button or control functions.

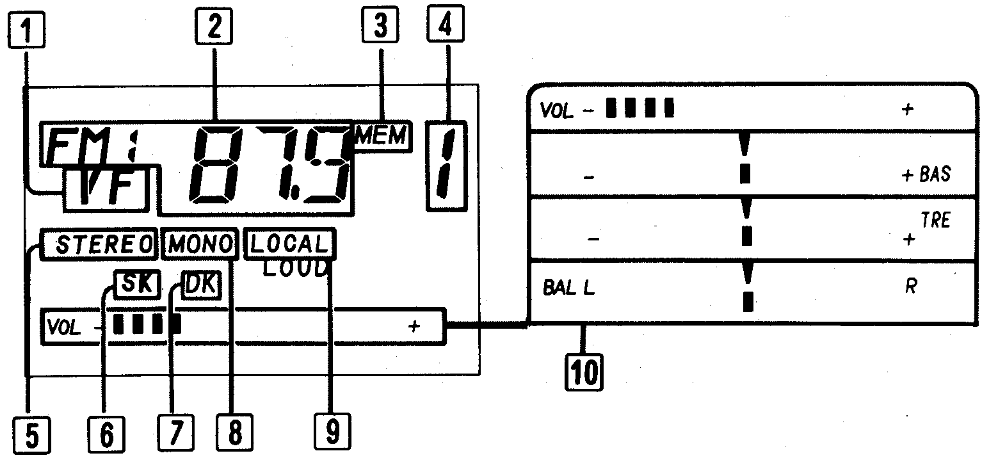


	Current operation mode	
	Tape playback	Radio reception
10 PLAY/DIR (playback/tape transport direction) button	Press to change the side of the cassette to be played back.	Press to start tape playback.
11 FM/AM select button	Press to turn on the radio.	Press to select the band.
12 CD select button	Press to listen the CD.	
13 SEEK/TRACK/AMS button	Press ⏮ or ⏭ side to locate the beginning of the selection.	Press – or + side to search for the desired station.
14 MAN/DISC/REW-FF (manual/disc/rewind-fast forward) button	Press REW or FF side for fastwinding of the tape.	Press – or + side to tune in the station manually.

	Current operation mode	
	Tape playback	Radio reception
15 DOLBY NR/MONO (Dolby noise reduction*/monaural) button	Press to activate B-type or C-type Dolby noise reduction system. DD B or DD C indicator appears.	Press to reduce noise during reception of a weak FM stereo program. The MONO indicator appears. Press again to disengage.
16 METAL/LOCAL button	Press when listening to CrO2 (TYPE II) or metal (TYPE IV) tapes. The METAL indicator appears. Press again to disengage.	Press to eliminate interference from adjacent stations during reception of a strong station. The LOCAL indicator appears. Press again to disengage.
17 Preset number/area code seek buttons	Used for the AMS function. (See page 16.)	Press to memorize the frequency or to receive a preset station. • Used also to tune in a traffic information station for a desired area.
18 MEM (memory) button	——	Press to memorize the tuned station. Keep pressed for more than 2 seconds to activate the automatic memory function or to memorize the volume level for traffic informations.

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

Display window



During radio reception

1 VF indicator
Appears when only traffic information stations can be tuned in. (VF-DK is activated.)

2 Band and frequency indicators

3 MEM (memory) indicator

4 Preset number/area code indicator
Shows the selected preset number. Shows also the area code of the currently tuned traffic information station.

5 STEREO (FM stereo) indicator
Appears when an FM stereo program of sufficient signal strength is tuned in.

6 SK indicator
Appears when a traffic information station is tuned in.

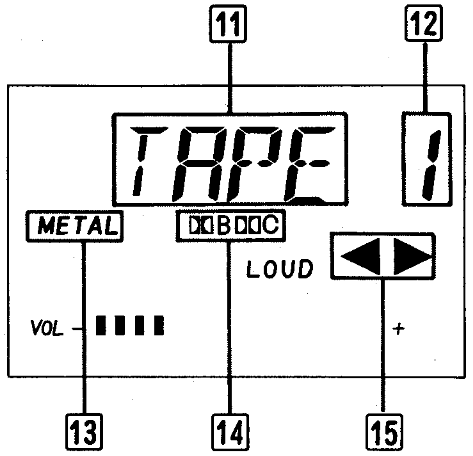
7 DK indicator
Blinks when a traffic information program is being received.
Appears steadily when the unit stands by receiving a traffic information program.

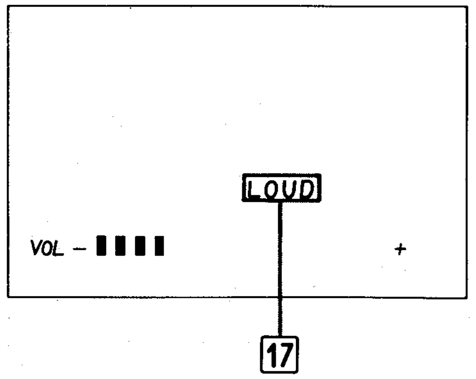
8 MONO indicator

9 LOCAL indicator

Display for the electronic sound level control

10 Sound control indicator and level scale
Normally the level scale shows the overall sound level. By switching the SELECT button, it also shows the level of treble response, bass response, the balance of left (L) and right (R) channels.





During tape playback

11 Mode indicator
TAPE: Appears during tape playback.
FF/REW: Appears when fast-winding the tape.
FF AMS/REW AMS: Blinks when the AMS function is activated.

12 AMS selection number indicator

13 METAL indicator

14 DD B/ DD C (Dolby NR B/Dolby NR C) indicator

15 Cassette side indicator
▶: The side facing upward is being played back.
◀: The side facing downward is being played back.

During any operation modes

17 LOUD (loudness) indicator

1-2. CIRCUIT DESCRIPTION

IC203 ELECTRONIC VOLUME-CONTROLLER TC9188F:

Pin No.	I/O	Name	Function
1		A-GND	Analog ground (L-ch)
2	I	ATT$_2$-IN	Audio input to 1dB-STEP ATTENUATOR (L-ch)
3	O	ATT$_2$-OUT	Audio output from 1dB-STEP ATTENUATOR (L-ch), 10 levels (0~-9dB)
4	O	F	Audio output from FADER CONTROL (front) (L-ch)
5	O	R	Audio output from FADER CONTROL (rear) (L-ch)
6	I	FADER-IN	Audio input to FADER CONTROL (L-ch)
7		FADER-GND	Grounding pin for FADER CONTROL (L-ch)
8	I	TONE-IN	Audio input to TONE CONTROL (L-ch)
9		BASS 1	Tap 1 of BASS CONTROL (L-ch)
10		BASS-COM	Common terminal of variable-resistor network for BASS CONTROL (L-ch)
11		BASS 2	Tap 2 of BASS CONTROL (L-ch)
12	O	TONE-OUT	Audio output from TONE CONTROL (L-ch)
13		TREBLE-COM	Common terminal of variable-resistor network for TREBLE CONTROL (L-ch)
14		NC	Opened or grounded
15	I	ST	Strobe signal input pin, high active
16		GND	Ground for V$_{DD}$
17	I	V$_{DD}$	Power-supply voltage input pin. Connects to pin 38.
18	I	CK	Clock signal input to read control data
19	I	DATA	Control data input pin (serial)
20		NC	Opened of grouned.
21		TREBLE-COM	Common terminal of variable-resistor network for TREBLE CONTROL (R-ch)
22	O	TONE-OUT	Audio output from TONE CONTROL (R-ch)
23		BASS 2	Tap 2 of BASS CONTROL (R-ch)
24		BASS-COM	Common terminal of variable-resistor network for TREBLE CONTROL (R-ch)
25		BASS 1	Tap 1 of BASS CONTROL (R-ch)
26	I	TONE-IN	Audio input to TONE CONTROL (R-ch)
27		FADER-GND	Grounding pin for FADER CONTROL (R-ch)
28	I	FADER-IN	Audio input to FADER CONTROL (R-ch)
29	O	R	Audio output from FADER CONTROL (R-ch)
30	O	F	Audio output from FADER CONTROL (R-ch)
31	O	ATT$_2$-OUT	Audio output from 1dB-STEP ATTENUATOR (R-ch), 10 levels (0~-9dB)
32	I	ATT$_2$-IN	Audio input to 1dB-STEP ATTENUATOR (R-ch)
33		A-GND	Analog ground (R-ch)
34	I	ATT$_1$-IN	Audio input to 10dB-STEP ATTENUATOR (R-ch)
35	O	ATT$_1$-OUT	Audio output from 10dB-STEP ATTENUATOR (R-ch), 8 levels (0~-70dB)
36		LD$_2$	Time constant CR connecting terminal 2 for LOUDNESS CONTROL (R-ch)
37		LD$_1$	Time constant CR connecting terminal 1 for LOUDNESS CONTROL (R-ch)
38	I	V$_{DD}$	Power-supply voltage input pin
39	I	V$_{DD}$	Connects to pin 38.
40		V$_{SS}$	Normally grounded. In case of Dual-power-supply system, connectes to negative one.
41		LD$_1$	Time constant CR connecting terminal 1 for LOUDNESS CONTROL (L-ch)
42		LD$_2$	Time constant CR connecting terminal 2 for LOUDNESS CONTROL (L-ch)
43	O	ATT$_1$-OUT	Audio output from 10dB-STEP ATTENUATOR (L-ch), 8 levels (0~-70dB)
44	I	ATT$_1$-IN	Audio input to 10dB-STEP ATTENUATOR (L-ch)

IC601 DISPLAY- AND KEY-CONTROL MICROCOMPUTER μPD75104:

Pin No.	I/O	Name	Function
1 to 6			Not used.
7	I	$\overline{\text{RESET}}$	Initializes the processor with "L" level input.
8		X2	A X'tal oscillator is connected, and generates 4.19MHz clock pulses.
9		X1	
10 to 21			Not used.
22	O	LCD D	LCD serial data output pin
23	O	LCD C	LCD timing clock output pin
24	O	LCD E	LCD enable-signal output pin
25	O	$\overline{\text{DINH}}$	Display-inhibit-signal output pin
26		V$_{SS}$	Ground
27		TEST 4	Mode-set test, normally grounded (not active)
28		TEST 2	
29		TEST 1	Command test, normally grounded (not active)
30		TEST 0	LCD segment test. With "H" level, all segments are on.
31	I	$\overline{\text{EJECT}}$	Eject-key-signal input pin
32, 33			Not used.
34	I	RM	Remote control input pin. Pulled up to "H" level.
35	I	DSL I	Data-select signal input. Grounded.
36	I	$\overline{\text{M}}$/S	Command micom switching. Grounded to select the main one.
37	O	BEEP	Beep-control signal output pin
38		DK SIG	Not used.
39	O	DSL	Data-select signal output pin
40	O	KEO	Not used.
41	I	SI	Serial data input pin
42	I	KEI	Key-enable signal input pin
43	I	$\overline{\text{SCK}}$	Serial clock input pin
44		NC	Not used.
45	O	CMCO	Command clock output pin
46	O	CMDO	Command data output pin
47	O	KS5	Key-matrix signal output pins, low active
48	O	KS4	
49	O	KS3	
50	O	KS2	
51	O	KS1	
52	O	KS0	
53	I	KI3	Key-matrix signal input pins, low active (pulled up to "H")
54	I	KI2	
55	I	KI1	
56	I	KI0	
57		NC	Not used.
58		V$_{DD}$	Power-supply voltage input pin
59 to 64			Not used.

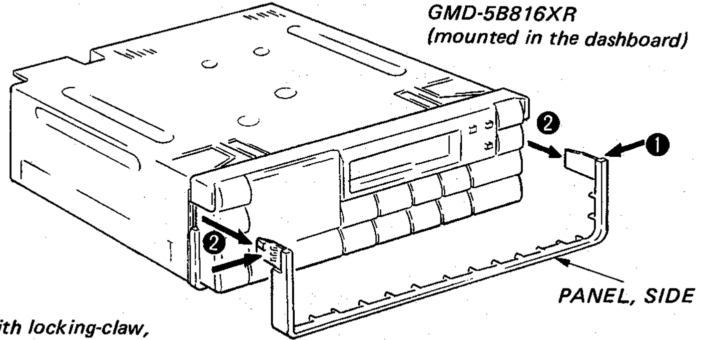
IC602 DECK- AND TUNER-CONTROL MICROCOMPUTER μPD75108G-593-1B:

Pin No.	I/O	Name	Function
1	O	POWER	Power-control output pin
2	O	AMS	AMS-signal output pin
3	I	CD MUTE	CD-muting-signal input pin
4	I	CD C	CD-connecting-signal input pin
5	I	REMOTE IN	Aux input pin
6	I	AMS IN	AMS-signal input pin
7	I	RESET	Initializes the processor with low level input.
8		X2	A X'tal oscillator is connected to the pins, and generates 4.19 MHz clock pulses.
9		X1	
10	I	MTX0	Mode-matrix input pins
11	I	MTX1	
12	I	MTX2	
13	I	MTX3	
14	O	RADIO	Radio-power-signal output
15	O	PLL D	PLL-data output pin
16	O	PLL C	PLL-clock output pin
17	O	PLL S	PLL-data strobe signal output pin
18	O	AGC	AGC-signal output pin (AM)
19	O	LO/$\overline{\text{DX}}$	Local/DX switching. Loacal: high ("H")
20	O	SD SENS	SD sensitivity switching
21	O	MONO	Stereo/mono switching. Mono: high ("H")
22	O	REW PL	REW plunger-solenoid control signal output pin
23	O	FF PL	FF plunger-solenoid control signal output pin
24	O	DIR PL	DIR plunger-solenoid control signal output pin
25	O	MOTOR CONT	Motor control signal output pin
26		V_{SS}	Ground
27	I	END F	FWD reel-table-rotation-signal input pin
28	I	END R	REV reel-table-rotation-signal input pin
29	O	TO SW	Cassette-unloaded-signal input pin
30		NC	Not used
31	I	TI SW	Cassette-loaded-signal input pin
32	I	NOR/REV	Tape-direction-signal input. Normal: high ("H")
33		EDIS	Operation end detecting. System disables at low ("L").
34		ACC	Accessory-switch-off detection
35	I	DK	DK count input pin
36	I	BK	BK count input pin
37	I	SK	SK count input pin, low active.
38	I	SD	SD-signal input pin
39	I	ST	Stereo-signal input pin, low active.
40	I	POWER SW	Power-switch-on detection, low active
41	I	SI	Serial command-signal input pin
42	I	DSL	Data-select-signal input pin
43	I	SCK	Command-clock input pin, low active
44		BACK UP	Back-up-power detection, "H" to "L": SLEEP, "L" to "H": WAKE UP

Pin No.	I/O	Name	Function
45	O	SCO	Status-clock output pin
46	O	SDO	Status-data output pin
47	O	RC	System-reset-signal output pin
48	O	$\overline{\text{DK OUT}}$	DK-signal output pin, low active
49	O	$\overline{\text{OR OUT}}$	Out-run-signal output pin, low active
50	O	$\overline{\text{DECK}}$	MD-on-signal output pin, low active
51	O	MUTE	Muting-signal output pin
52	O	$\overline{\text{CD ON}}$	CD-on-signal output pin, low active
53	O	$\overline{\text{AUX}}$	AUX-on-signal output pin, low active
54	O	$\overline{\text{TUNER}}$	Tuner-on-signal output pin, low active
55	O	DOLBY B/$\overline{\text{C}}$	Dolby-B/C-selecting-signal output pin, C-type: low ("L")
56	O	$\overline{\text{DOLBY}}$	Dolby-on-signal output pin, low active
57		NC	Not used.
58	I	V_{DD}	Power-supply voltage input pin
59		ACC CONT	Not used.
60	O	VOL D	Volume-data output pin
61	O	VOL C	Volume-data clock output pin
62	O	VOL S	Volume-data strobe output pin
63			Not used.
64	O	TAPE	Tape-kind-selecting-signal output pin

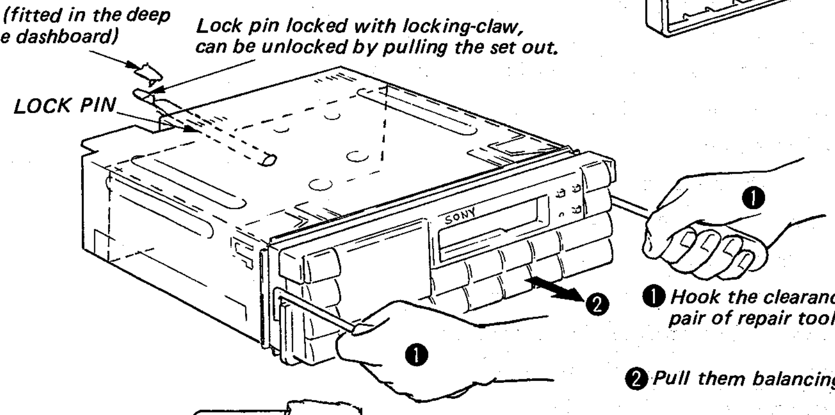
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.


BRACKET
GMD-5B816XR
(mounted in the dashboard)
❷
❶
❷
PANEL, SIDE

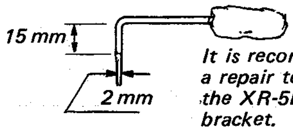
❶ Press side panel at the both sides like the arrows ❶ to release the claws from bracket.

❷ Remove side panel.


Locking-claw (fitted in the deep position of the dashboard)
Lock pin locked with locking-claw, can be unlocked by pulling the set out.
LOCK PIN
SONY
❶
❷
❶

❶ Hook the clearances with a pair of repair tools.

❷ Pull them balancing.



It is recomended to make such a repair tool as illustrated for the XR-5B816's removal from bracket.

SECTION 3
ADJUSTMENTS

3.1 MECHANICAL ADJUSTMENTS

- Torque Measurement

Mode	Torque Meter	Torque
FWD (REV)	CQ-102B (CQ-102RC)	30 – 60g·cm (0.42 – 0.84oz·inch)
FF	CQ-201A	30 – 130g·cm (0.42 – 1.82oz·inch)
REW	CQ-201A	30 – 130g·cm (0.42 – 1.82oz·inch)
FWD (REV) back tension	CQ-102B (CQ-102RC)	1 – 5 g•cm (0.014 – 0.07 oz•inch)

Note: The adjustment should be performed in the order given in this service manual.
The adjustments should be performed for both L-CH and R-CH.

- Power-supply voltage is +14.4V DC as per Ad Hoc recommendation.
- Switches and controls should be set as follows unless otherwise specified.

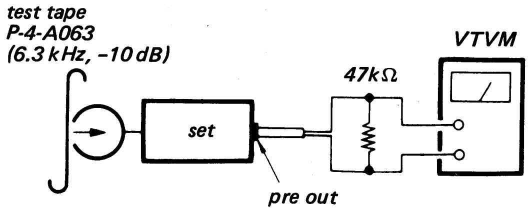
LOUDNESS: OFF
DOLBY NR: OFF
METAL/LOCAL: OFF

TAPE SECTION

Playback Head Azimuth Adjustment

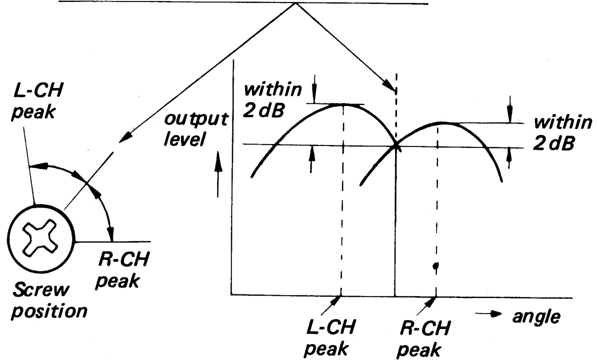
Procedure:

1. Mode: forward playback

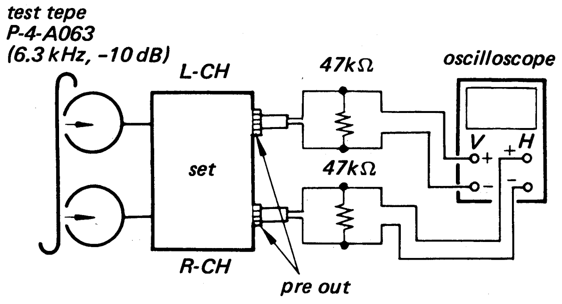

test tape
P-4-A063
(6.3 kHz, -10 dB)
VTVM
47kΩ
set
pre out

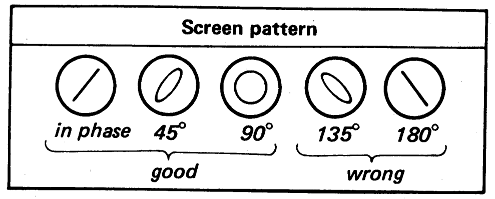
Adjust for forward (▶) direction and reverse (◀) direction.

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 2 dB.


L-CH
peak
output
level
within
2dB
within
2dB
R-CH
peak
Screw
position
L-CH
peak
R-CH
peak
angle

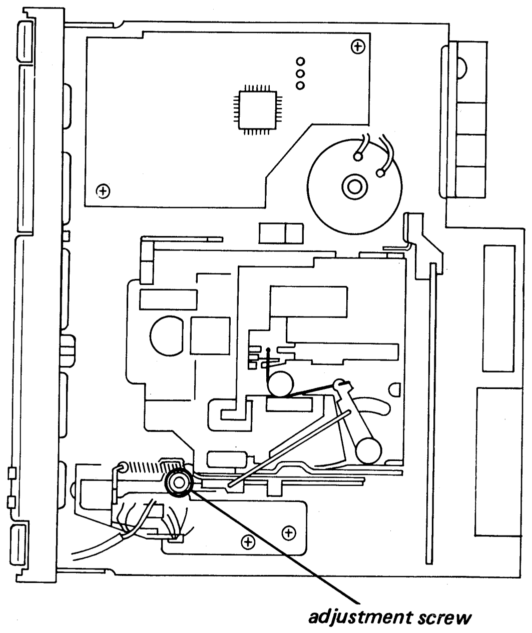
3. Phase Check
Confirm that phase difference between L-channel and R-channel is with 90°.


test tepe
P-4-A063
(6.3 kHz, -10 dB)
L-CH
47kΩ
oscilloscope
set
47kΩ
V
H
R-CH
pre out


Screen pattern
in phase
45°
90°
135°
180°
good
wrong

4. Repeat the above adjustment for reverse playback mode.
5. After the adjustment, lock the screw with locking compound.

Adjustment Location:

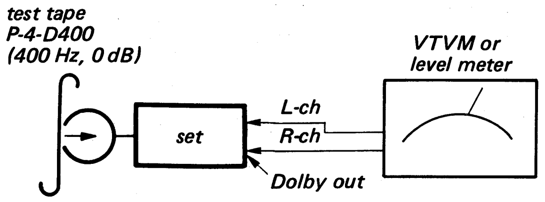

adjustment screw

3.2 ELECTRICAL ADJUSTMENTS

Dolby NR Level Adjustment

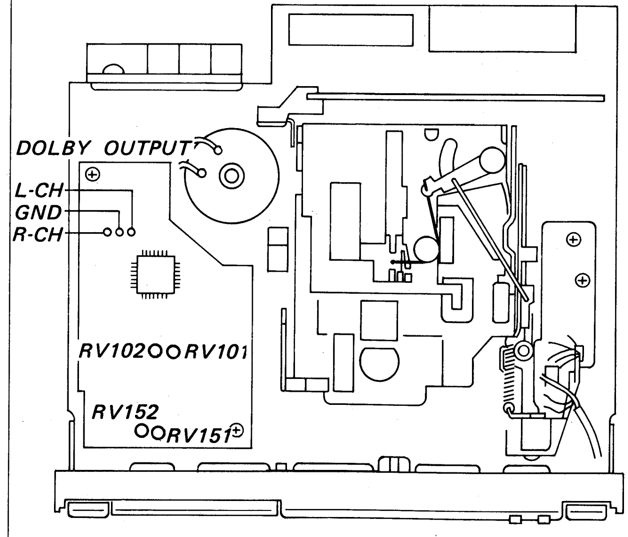
Setting:

Dolby NR Switch: OFF
Metal Switch: OFF


test tape
P-4-D400
(400 Hz, 0 dB)
VTVM or
level meter
set
L-ch
R-ch
Dolby out

Procedures:

1. Playback the test tape P-4-D400 in normal forward direction mode.
2. Adjust RV102 (L-ch) and RV152 (R-ch) so that the Dolby output becomes in –4±0.3 dB.
3. Playback the test tape in the reverse forward mode.
4. Adjust RV101 (L-ch) and RV151 (R-ch) so that the Dolby output becomes in –4±0.3 dB. (–4±0.3 dB: approx. 0.51~0.47V)


DOLBY OUTPUT
L-CH
GND
R-CH
RV102
RV101
RV152
RV151

See page 16.

REFERENCE

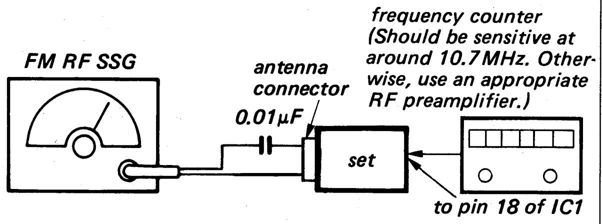
Tape End Detection Adjustment

FM SECTION

VCO Free-Run Adjustment

Setting:

Band Switch: FM MONO
Frequency: 98.0 MHz

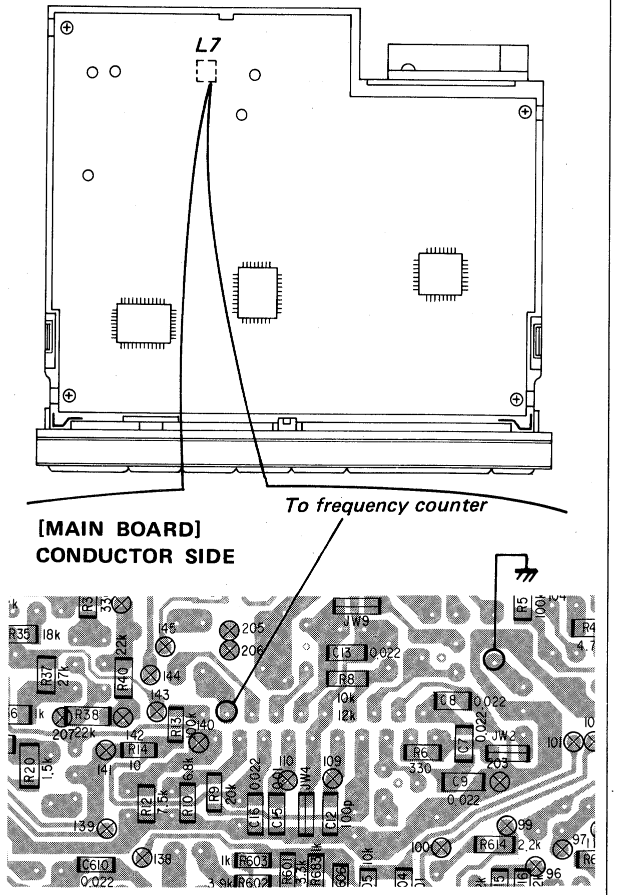

FM RF SSG
antenna
connector
0.01μF
set
frequency counter
(Should be sensitive at around 10.7 MHz. Otherwise, use an appropriate RF preamplifier.)
to pin 18 of IC1

Carrier frequency:	*98.0 MHz*
Output level:	*less than -20 dB*
Modulation:	*no modulation*

Procedures:

1. Ground the junction of CF1 and CF2.
2. Adjust the core of L7 on the component side so that the reading of the frequency counter becomes in from 10.690 to 10.700 MHz.
3. Remove the grounding at the junction of CF1 and CF2.

MAIN BOARD CONDUCTOR SIDE VIEW


L7
To frequency counter
[MAIN BOARD]
CONDUCTOR SIDE
R35 18k
R37 27k
R40 22k
R38 22k
207
1k
145
144
143
142
141
140
139
138
205
206
R13 100k
R14 10
R20 1.5k
R12 7.5k
R10 6.8k
R9 20k
C16 0.022
C15 0.01
JW4
JW9
JW2
C12 100p
C13 0.022
R8 10k
12k
C8 0.022
C7 0.022
R6 330
C9 0.022
203
110
109
101
100
99
97
96
R614 2.2k
R5 100k
4.7
C610 0.022
1k R603
3.9k R602
R601 3.3k
R683 1k
10k

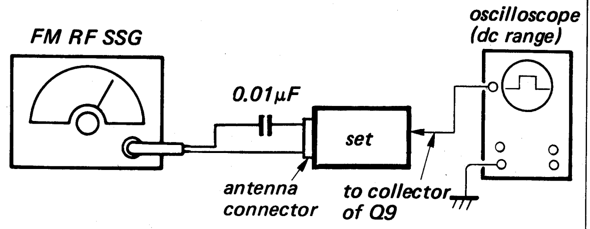
The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.

SD Center-Frequency Adjustment

Setting:

Band Switch: FM MONO

Frequency: 97.9 MHz (Initial frequency, no memory, power-on)

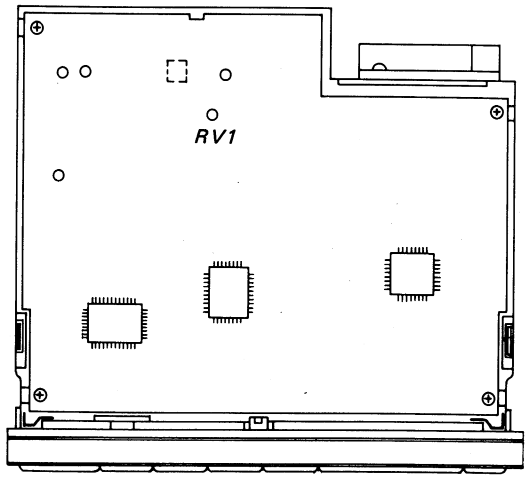

FM RF SSG
0.01μF
set
antenna connector
to collector of Q9
oscilloscope (dc range)

Carrier frequency: 97.855 MHz
Output level: 60 dB (1 mV)
Modulation: no modulation

Procedures:

1. Tune the set to 97.9 MHz.
2. Adjust RV1 to obtain the position where the oscilloscope voltage reading just changes from low to high.
3. Decrease the frequency of the SSG so that the voltage reading just changes from high to low.
4. Increase the frequency of the SSG by 1 kHz step and confirm that the frequency at which the voltage reading changes to high again become in 97.855 MHz $^{+5}_{-2}$ kHz.
5. Increase the frequency of the SSG until the voltage reading just changes to low again.
6. Decrease the frequency of the SSG by 1 kHz step and confirm that the frequency at which the voltage reading just changes to high again becomes in 97.924 MHz ±6 kHz.

MAIN BOARD CONDUCTOR SIDE VIEW



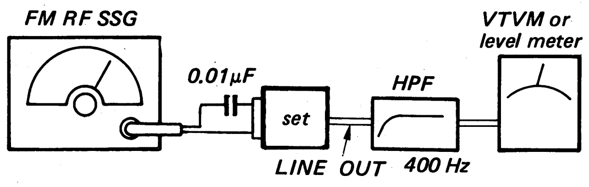
Soft-Muting Adjustment

Setting:

Band switch: FM MONO

Frequency: 97.9 MHz

The bottom plate and the short black grounding lead wire of the cable assembly should be firmly installed on the chassis.

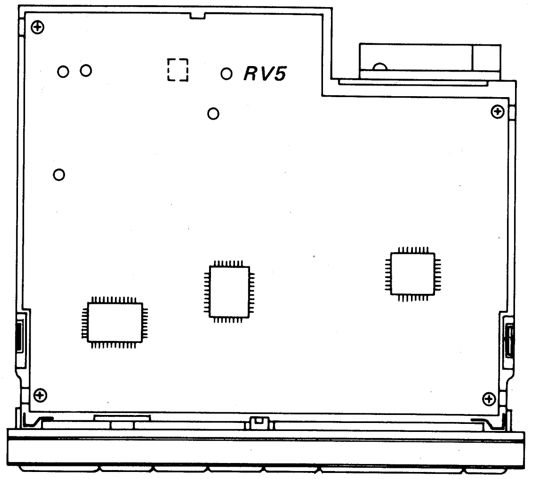

FM RF SSG
0.01μF
set
HPF
LINE OUT
400 Hz
VTVM or level meter

Carrier frequency: 97.9 MHz
Modulation: 400 Hz, 22.5 kHz deviation (30%)
Output level: 60 dB (1 mV)

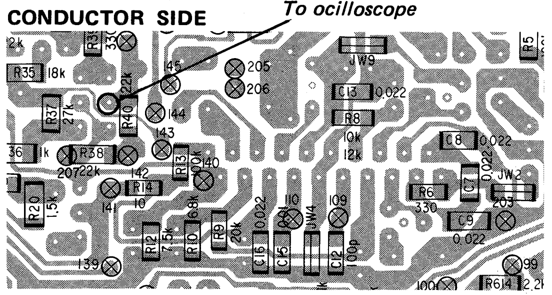
Procedures:

1. Adjust VOL LEVEL so that the LINE OUT level becomes in 0 dB.
2. Reduce the output level of the SSG down to less than 0 dB (1μV).
3. Adjust RV5 on the component side so that the LINE OUT level becomes in -5 dB ± 2 dB (0.436 V ±2 dB).

MAIN BOARD CONDUCTOR SIDE VIEW



[MAIN BOARD] CONDUCTOR SIDE

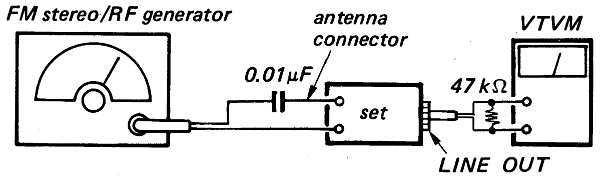

To ocilloscope
R35
R38
R40
R18
R12
R10
R8
R20
R6
C13
C8
C9
C7
JW9
JW2
JW4
205
206
144
143
142
141
140
139
110
109
100
99

FM Stereo Separation Adjustment

Setting:

BAND: FM Stereo

Frequency: 97.9 MHz


FM stereo/RF generator
0.01μF
antenna connector
set
47 kΩ
VTVM
LINE OUT

Carrier frequency: 97.9 MHz
Output level: 60 dB (1 mV)
Modulation: main: 1 kHz, 33.75 kHz deviation
sub: 1 kHz, 33.75 kHz deviation
19 kHz pilot: 7.5 kHz deviation

Porcedure:

1. Adjust RV2 for a best stereo separation at a LINE OUT level of approximately 0 dB. More than 35 dB is good.

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV2 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV2 for minimum reading.

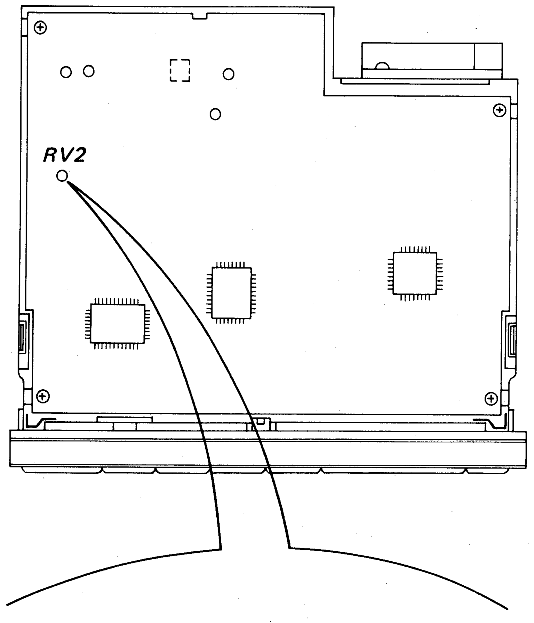
L-CH Stereo separation: Ⓐ – Ⓑ
R-CH Stereo separation: Ⓒ – Ⓓ

The separations of both channels shoul be equal.

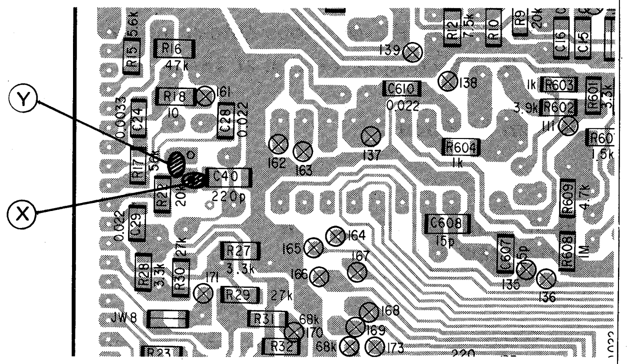
2. If the result is not enough, make a solder bridge at Ⓧ position and step back to procedure 1.
3. If the result is still not good even with the bridge Ⓧ, make one at Ⓨ position in place of Ⓧ and step to procedure 1. again.

Adjustment Location:

MAIN BOARD CONDUCTOR SIDE VIEW



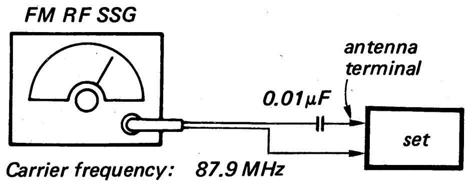
[MAIN BOARD] CONDUCTOR SIDE


Ⓨ
Ⓧ
R16
R18
R15
R17
R24
R28
R27
R29
R31
R32
C40
C610
C608
C607
R603
R604
R609
R608
161
162
163
164
165
166
167
168
169
170
171
173
136
137
138
139
JW8

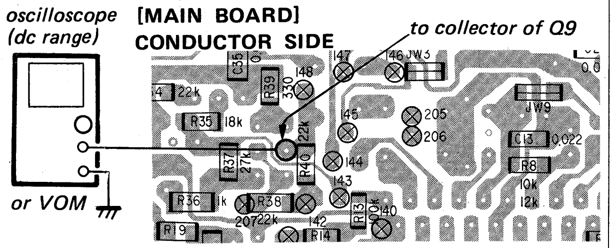
FM Seek Stop Level Adjustment

Setting:

Band switch: FM MONO
Frequency: 87.9 MHz


FM RF SSG
antenna terminal
0.01μF
set

Carrier frequency: *87.9 MHz*
Modulation: *no modulation*
Output level: *28 dB*

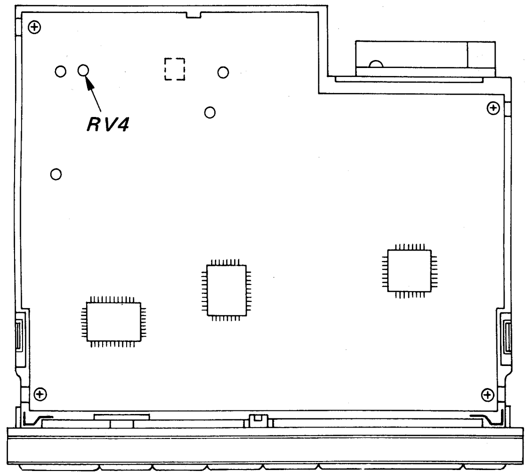

oscilloscope (dc range)
[MAIN BOARD] CONDUCTOR SIDE
to collector of Q9
or VOM

Procedure:

1. Tune the set to 87.9 MHz.
2. Adjust RV4 to the point where the VOM reading changes from low to high.
3. Confirm that the set stops auto-scanning with FM RF SSG output level set at 28 ±3 dB.

Adjustment Location:

MAIN BOARD CONDUCTOR SIDE VIEW



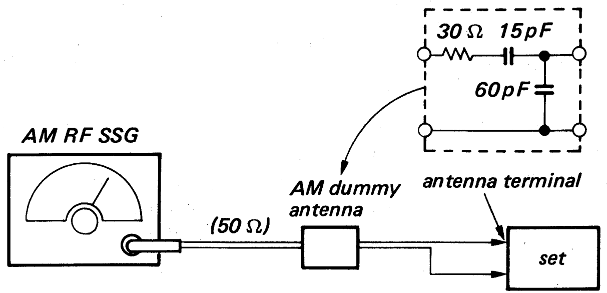
AM SECTION

AM Seek Stop Level Adjustment

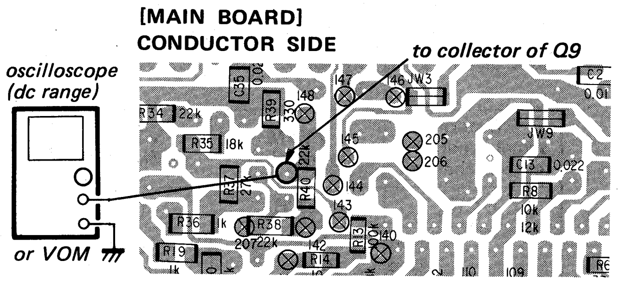
Be sure to perform this adjustment after "FM seek Stop Adjustment".

Setting:

Band: AM
Frequency: 999 kHz


30 Ω 15pF
60pF
AM RF SSG
AM dummy antenna
antenna terminal
(50 Ω)
set

Carrier frequency: *999 kHz*
Output level: *38 dB*
Modulation: *no moduration*

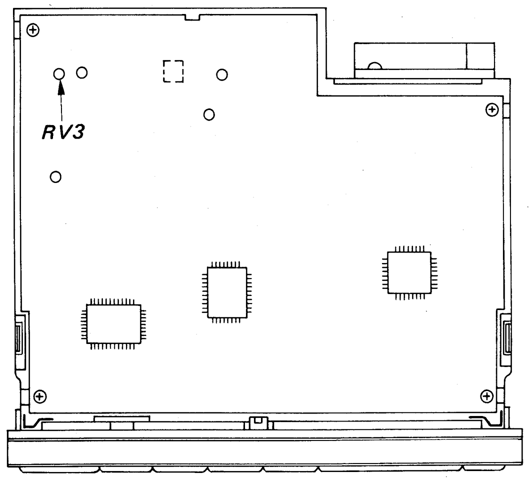

[MAIN BOARD] CONDUCTOR SIDE
to collector of Q9
oscilloscope (dc range)
or VOM

Procedure:

1. Tune the set to the frequency.
2. Adjust RV3 to the point where the VOM reading just changes from low to high.
3. Confirm that the set stops auto-scanning with AM RF SSG output level set at 38 ±3 dB.

Adjustment Location:

MAIN BOARD CONDUCTOR SIDE VIEW

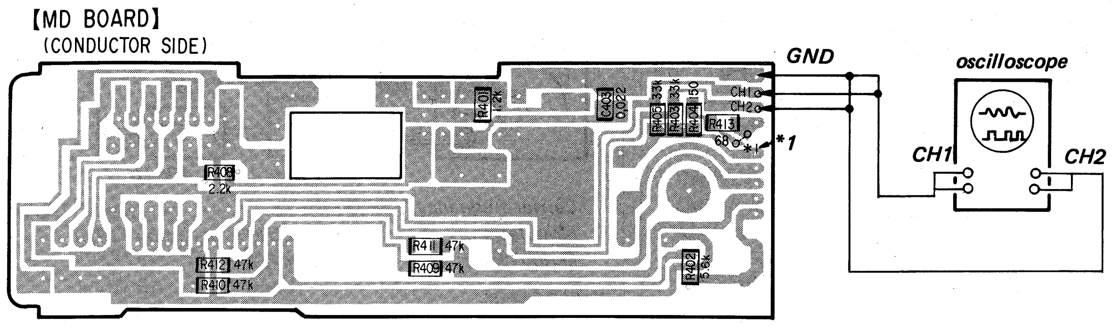


REFERENCE

Tape End Detection Adjustment

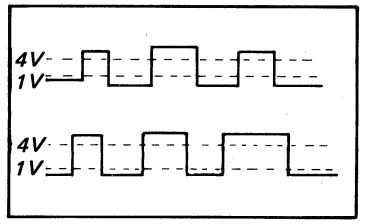
Checking the output voltages from the photo interrupters (PH401, PH402).

Test tape: *C-60 (or any)*
Setting: *FF or REW*


[MD BOARD] (CONDUCTOR SIDE)
GND
CH1
CH2
*1
oscilloscope
CH1
CH2

Procedures:

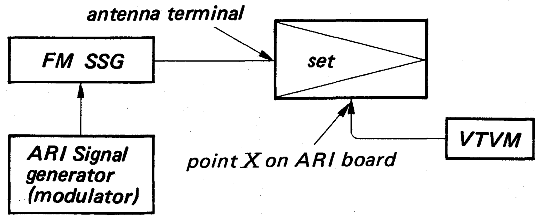
1. Confirm that the both voltages of CH1 and CH2 are more than 4 V at their high level and less than 1 V at their lower level.
2. If the specification above is not satisfied make a solder bridge at the portion of the pattern marked with *1 on MD BOARD, and confirm that the specifcation of Procedure 1 is satisfied.



ARI Level Adjustment

Setting:

Band Switch: FM MONO


antenna terminal
FM SSG
set
VTVM
ARI Signal generator (modulator)
point X on ARI board

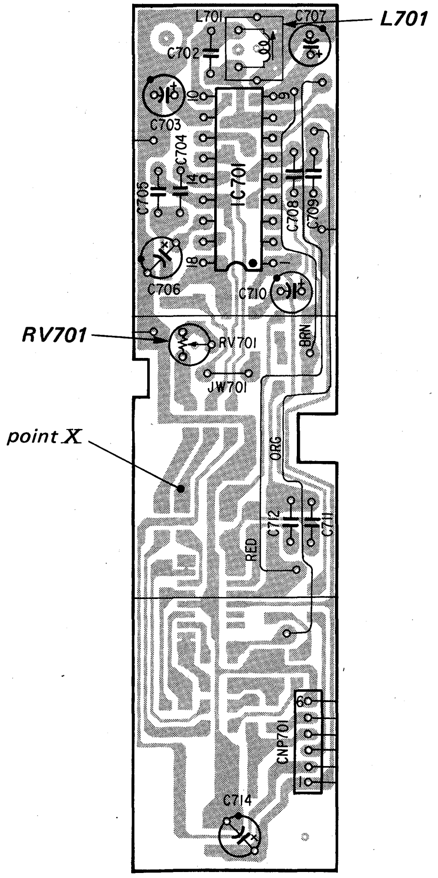
Frequency: Initial frequency
Modulation: ARI carrier only
Output level: 4m Vrms (composit)

1. **Procedure:**
   (1) Adjust L701 so that the level of 125 Hz signal becomes maximum.
   (2) Adjust RV701 in the same way.
2. **Specification:** 1 Vrms or more

Adjustment Location:

ARI BOARD COMPONENT SIDE VIEW

【ARI BOARD】
(COMPONENT SIDE)

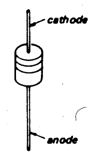

L701
RV701
point X
C702
C707
C703
C704
C705
IC701
C708
C709
C706
C710
JW701
BRN
ORG
RED
C712
C711
CNP701
C714

MEMO

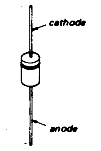
SECTION 4
DIAGRAMS

- **SEMICONDUCTOR LEAD LAYOUTS**

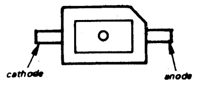
RD3.9ES-B2
RD4.3ES-B2
RD5.6ES-B2
RD5.6ES-T1B2
RD6.2ES-B2
RD6.2EL2
RD9.1ES-B2
1SS119
1SS133
10E-2


cathode
anode

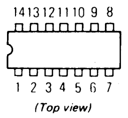
ERA81-004


cathode
anode

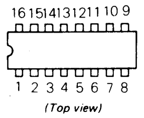
LN1451C


cathode
anode

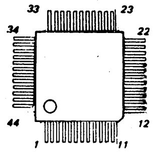
M5228FP
M54516P


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

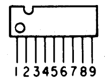
M5246FP
µPD4050BG
µPD4052BG
LM7001


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

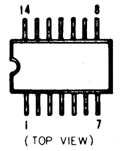
TC9188F


33
23
34
22
44
12
1
11

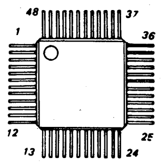
BA338



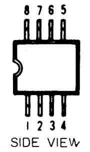
M5228FP


14
8
1
7
(TOP VIEW)

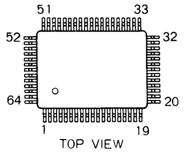
CXA1097Q


48
37
1
36
12
25
13
24

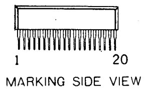
µPC4558G2


8 7 6 5
1 2 3 4
SIDE VIEW

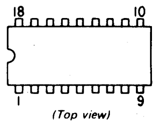
µPD75104G-545-1B
µPD75108G-593-1B


51
33
52
32
64
20
1
19
TOP VIEW

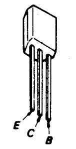
M51690L


1
20
MARKING SIDE VIEW

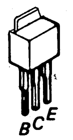
TDA1579


18
10
1
9
(Top view)

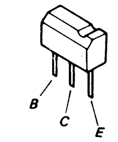
DTA114ES
DTC114ES
DTC144ES
2SA1048-GR
2SC634SP
2SD1012



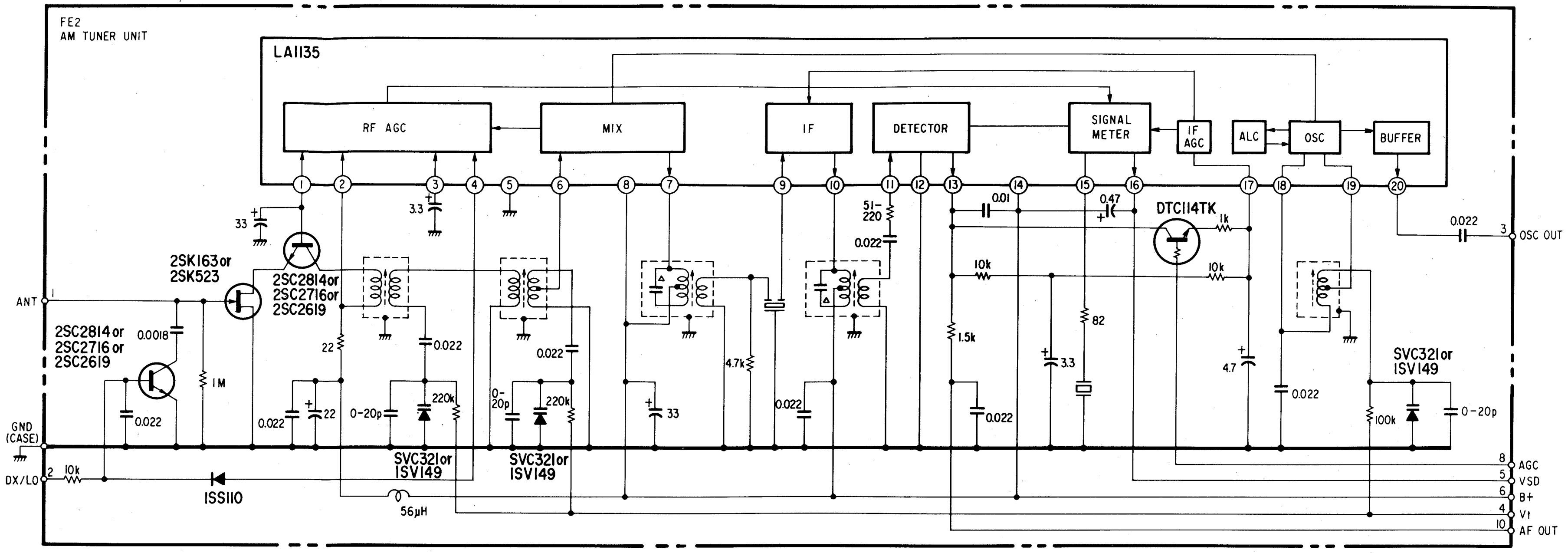
2SD1802



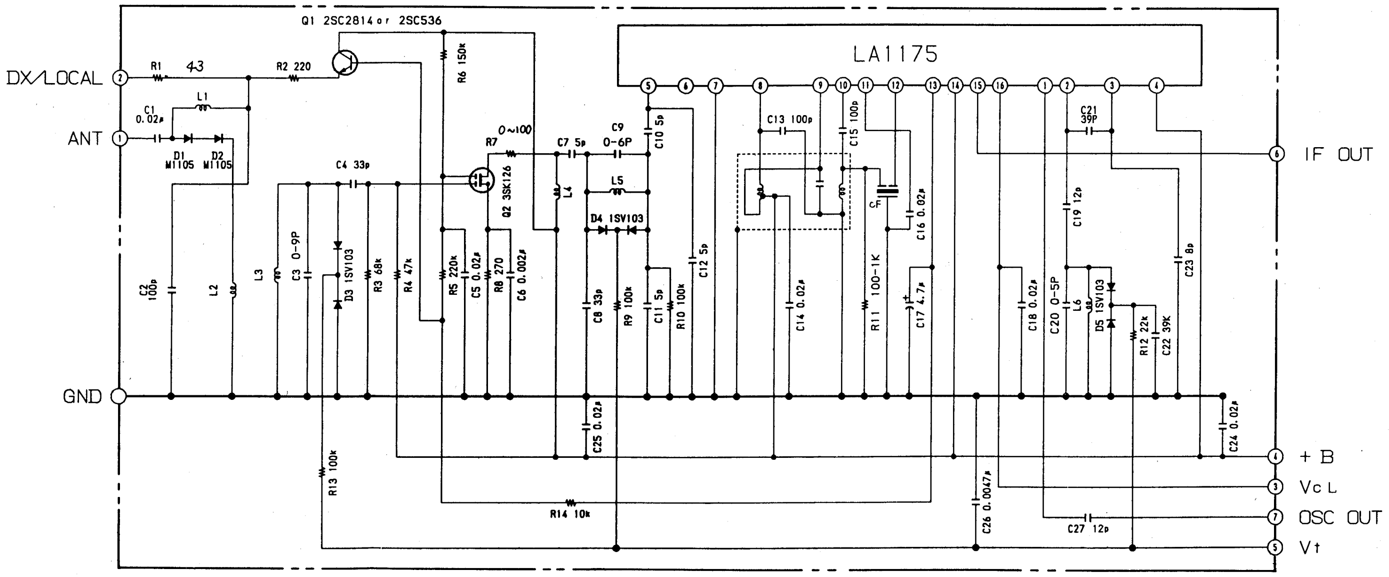
2SA881
2SB822
2SD1055



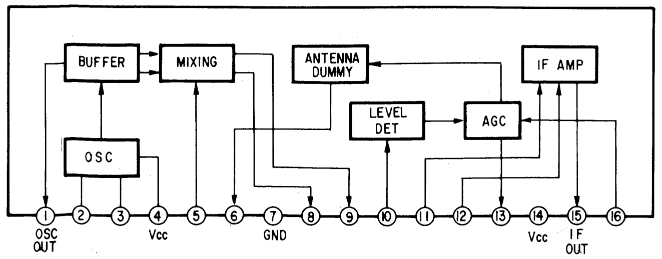
4.1 AM FRONT END (FE2)

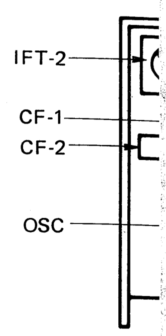

FE2
AM TUNER UNIT
LA1135
RF AGC
MIX
IF
DETECTOR
SIGNAL METER
IF AGC
ALC
OSC
BUFFER
ANT
GND (CASE)
DX/LO
2SK163 or
2SK523
2SC2814 or
2SC2716 or
2SC2619
DTC114TK
1SS110
SVC321 or
1SV149
56µH
OSC OUT
AGC
VSD
B+
Vt
AF OUT

4.2 FM FRONT END (FE1)


Q1 2SC2814 or 2SC536
LA1175
DX/LOCAL
ANT
GND
D1 M1105
D2 M1105
Q2 3SK126
D4 1SV103
D3 1SV103
D5 1SV103
IF OUT
+B
VcL
OSC OUT
Vt

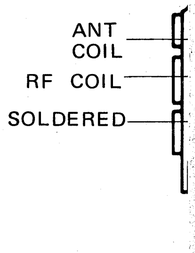
- **FM FRONT END IC LA1175**


BUFFER
MIXING
ANTENNA DUMMY
IF AMP
LEVEL DET
AGC
OSC
OSC OUT
Vcc
GND
Vcc
IF OUT


IFT-2
CF-1
CF-2
OSC

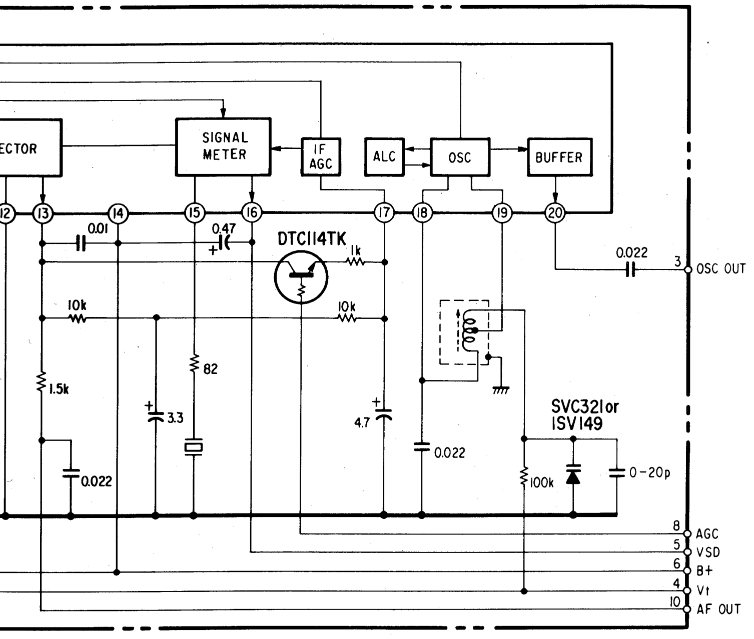
AM FRON

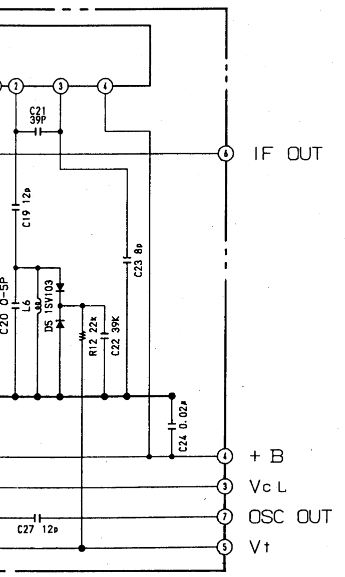
Receive Fr
Tuning Vo
IF Center
Reference


ANT COIL
RF COIL
SOLDERED

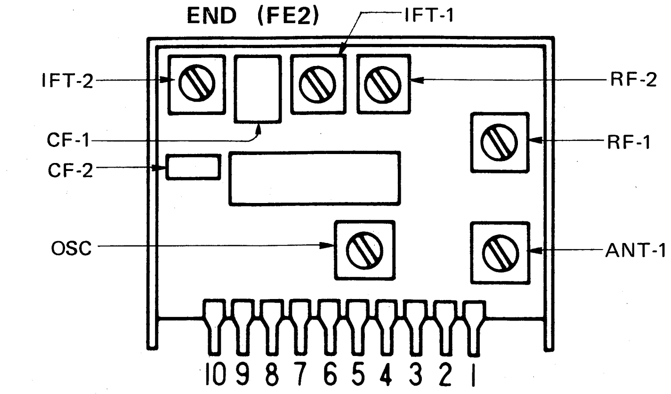
FM FRON

Receive Fr
IF Center
Reference
Receive T
OSC Tuni


ECTOR
SIGNAL METER
IF AGC
ALC
OSC
BUFFER
0.01
0.47
DTC114TK
1k
10k
10k
82
1.5k
3.3
4.7
0.022
0.022
0.022
SVC321 or ISV149
100k
0-20p
OSC OUT
AGC
VSD
B+
Vt
AF OUT


C21 39P
IF OUT
C19 12p
C23 8p
C20 0-5P
L6
D5 1SV103
R12 22k
C22 39K
C24 0.02μ
+B
VcL
OSC OUT
Vt
C27 12p

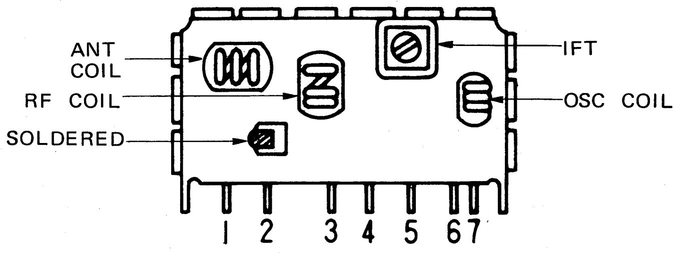
● AM FRONT END (FE2)


IFT-1
IFT-2
CF-1
CF-2
OSC
RF-2
RF-1
ANT-1
10 9 8 7 6 5 4 3 2 1

AM FRONT-END

Item	Specification
Receive Frequency	530 kHz – 1,630 kHz
Tuning Voltage	1.2 V – 6.8 V
IF Center Frequency	450 kHz
Reference Power Voltage	8.0 V

● FM FRONT END (FE1)

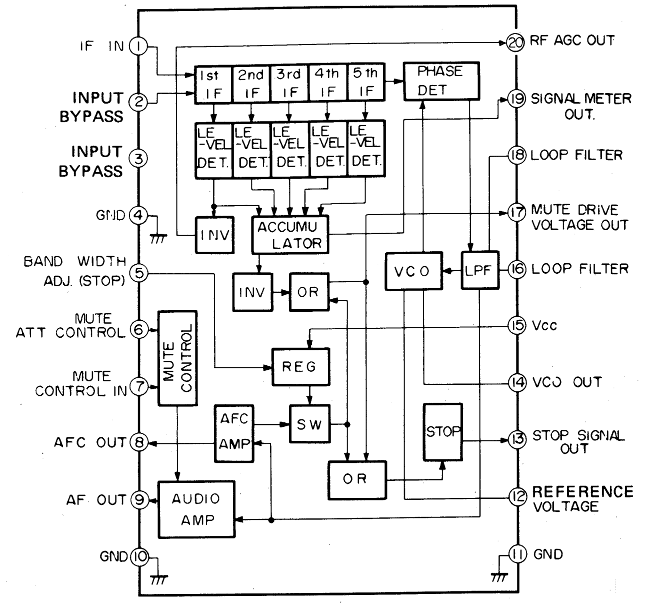

ANT COIL
RF COIL
SOLDERED
IFT
OSC COIL
1 2 3 4 5 6 7

FM FRONT-END

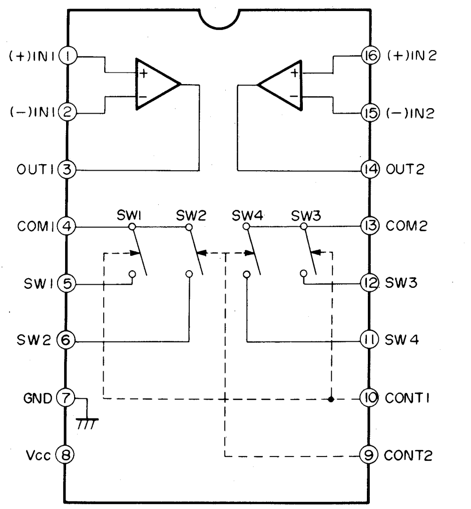
Item	Specification
Receive Frequency	87.5 MHz – 108.0 MHz
IF Center Frequency	10.7 MHz, Upper Heterodyne
Reference Power Voltage	7.8 V
Receive Tuning Voltage	1.6 V – 6.7 V
OSC Tuning Voltage	0 V – 10 V

4.3 IC BLOCK DIAGRAMS

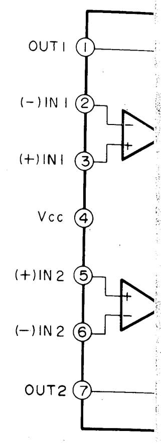
● IC1 M51690L


IF IN 1
INPUT BYPASS 2
INPUT BYPASS 3
GND 4
BAND WIDTH ADJ. (STOP) 5
MUTE ATT CONTROL 6
MUTE CONTROL IN 7
AFC OUT 8
AF OUT 9
GND 10
1st IF
2nd IF
3rd IF
4th IF
5th IF
LE-VEL DET.
PHASE DET
INV
ACCUMU LATOR
INV
OR
VCO
LPF
MUTE CONTROL
REG
AFC AMP
SW
STOP
OR
AUDIO AMP
20 RF AGC OUT
19 SIGNAL METER OUT.
18 LOOP FILTER
17 MUTE DRIVE VOLTAGE OUT
16 LOOP FILTER
15 Vcc
14 VCO OUT
13 STOP SIGNAL OUT
12 REFERENCE VOLTAGE
11 GND

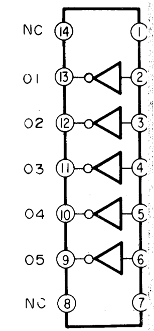
● IC101 M5246FP


(+)IN1 1
(−)IN1 2
OUT1 3
COM1 4
SW1 5
SW2 6
GND 7
Vcc 8
SW1
SW2
SW4
SW3
16 (+)IN2
15 (−)IN2
14 OUT2
13 COM2
12 SW3
11 SW4
10 CONT1
9 CONT2

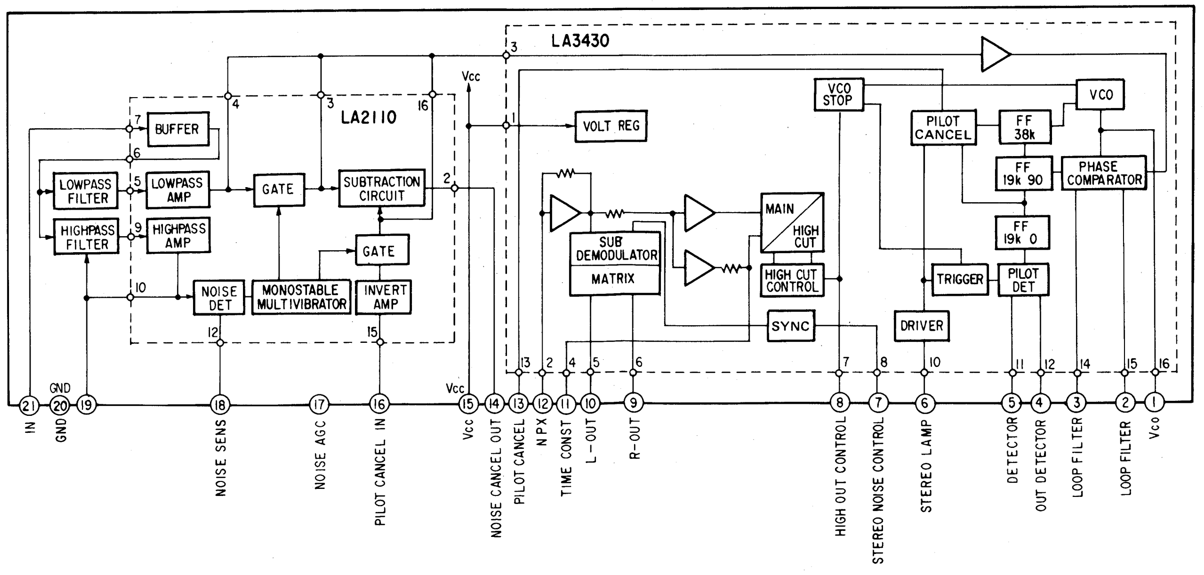
● IC201, 20


OUT1 1
(−)IN1 2
(+)IN1 3
Vcc 4
(+)IN2 5
(−)IN2 6
OUT2 7

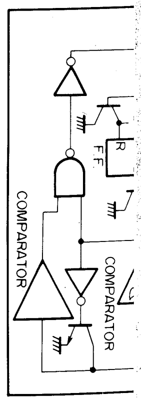
● IC401


NC 14
O1 13
O2 12
O3 11
O4 10
O5 9
NC 8

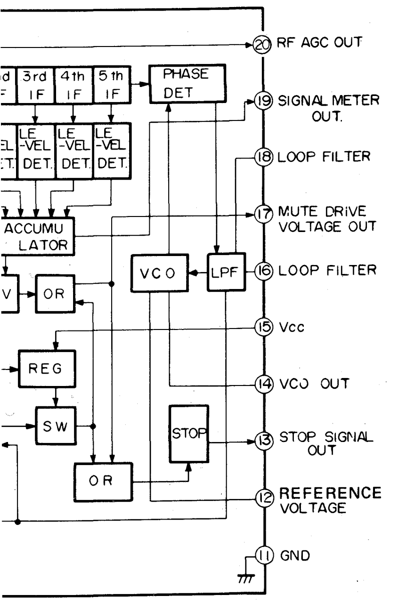
● IC2 STK3400 (50US)


LA3430
LA2110
BUFFER
LOWPASS FILTER
LOWPASS AMP
HIGHPASS FILTER
HIGHPASS AMP
GATE
SUBTRACTION CIRCUIT
GATE
NOISE DET
MONOSTABLE MULTIVIBRATOR
INVERT AMP
VOLT REG
SUB DEMODULATOR
MATRIX
MAIN
HIGH CUT
HIGH CUT CONTROL
SYNC
VCO STOP
PILOT CANCEL
FF 38k
VCO
FF 19k 90
PHASE COMPARATOR
FF 19k 0
TRIGGER
PILOT DET
DRIVER
Vcc
IN
GND
NOISE SENS
NOISE AGC
PILOT CANCEL IN
Vcc
NOISE CANCEL OUT
PILOT CANCEL
NPX
TIME CONST
L-OUT
R-OUT
HIGH OUT CONTROL
STEREO NOISE CONTROL
STEREO LAMP
DETECTOR
OUT DETECTOR
LOOP FILTER
LOOP FILTER
Vcc

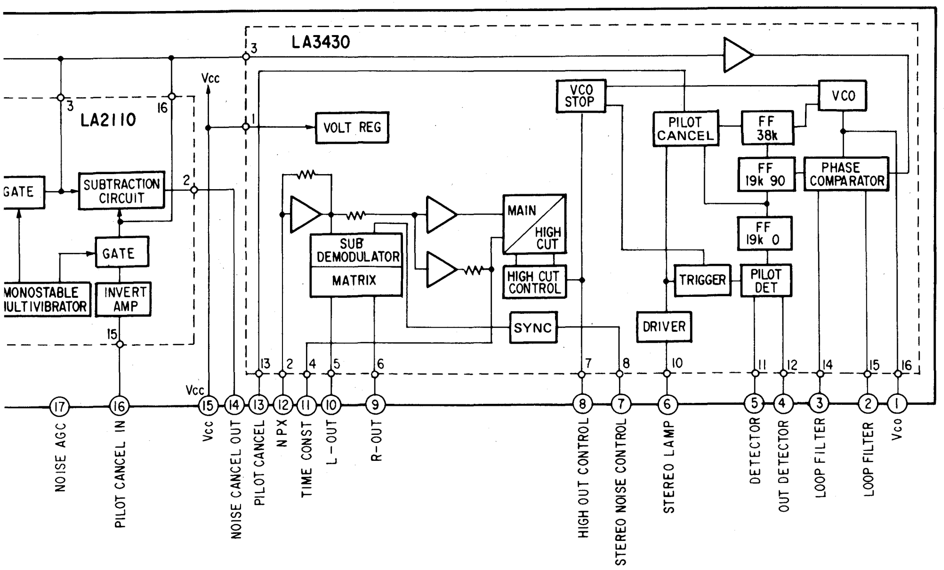
● IC603


COMPARATOR
COMPARATOR

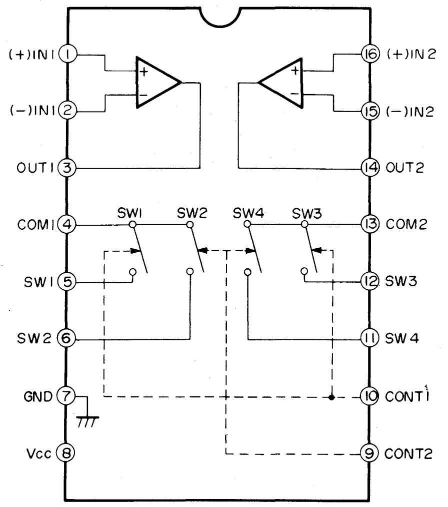
GRAMS


3rd IF
4th IF
5th IF
PHASE DET
LE-VEL DET
ACCUMU LATOR
OR
VCO
LPF
REG
SW
STOP
OR
⑳ RF AGC OUT
⑲ SIGNAL METER OUT.
⑱ LOOP FILTER
⑰ MUTE DRIVE VOLTAGE OUT
⑯ LOOP FILTER
⑮ Vcc
⑭ VCO OUT
⑬ STOP SIGNAL OUT
⑫ REFERENCE VOLTAGE
⑪ GND

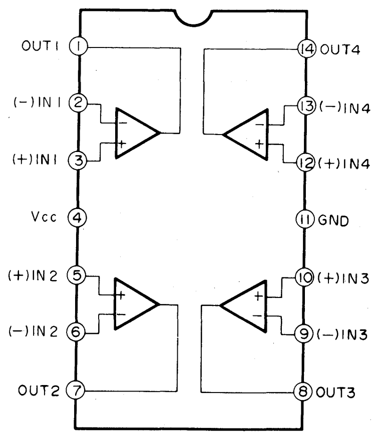
JS)


LA3430
LA2110
GATE
SUBTRACTION CIRCUIT
GATE
MONOSTABLE MULTIVIBRATOR
INVERT AMP
Vcc
VOLT REG
SUB DEMODULATOR
MATRIX
MAIN
HIGH CUT
HIGH CUT CONTROL
SYNC
VCO STOP
PILOT CANCEL
FF 38k
FF 19k 90
FF 19k 0
TRIGGER
PILOT DET
DRIVER
VCO
PHASE COMPARATOR
⑰ NOISE AGC
⑯ PILOT CANCEL IN
⑮ Vcc
⑭ NOISE CANCEL OUT
⑬ PILOT CANCEL
⑫ NPX
⑪ TIME CONST
⑩ L-OUT
⑨ R-OUT
⑧ HIGH OUT CONTROL
⑦ STEREO NOISE CONTROL
⑥ STEREO LAMP
⑤ DETECTOR
④ OUT DETECTOR
③ LOOP FILTER
② LOOP FILTER
① Vco

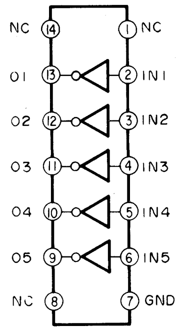
• IC101 M5246FP


(+)IN1 ①
(−)IN1 ②
OUT1 ③
COM1 ④
SW1 ⑤
SW2 ⑥
GND ⑦
Vcc ⑧
SW1
SW2
SW4
SW3
⑯ (+)IN2
⑮ (−)IN2
⑭ OUT2
⑬ COM2
⑫ SW3
⑪ SW4
⑩ CONT1
⑨ CONT2

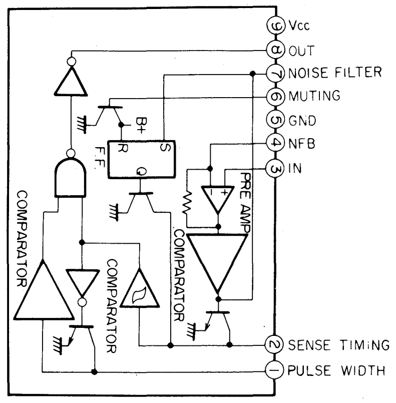
• IC201, 204, 205 M5228FP


OUT1 ①
(−)IN1 ②
(+)IN1 ③
Vcc ④
(+)IN2 ⑤
(−)IN2 ⑥
OUT2 ⑦
⑭ OUT4
⑬ (−)IN4
⑫ (+)IN4
⑪ GND
⑩ (+)IN3
⑨ (−)IN3
⑧ OUT3

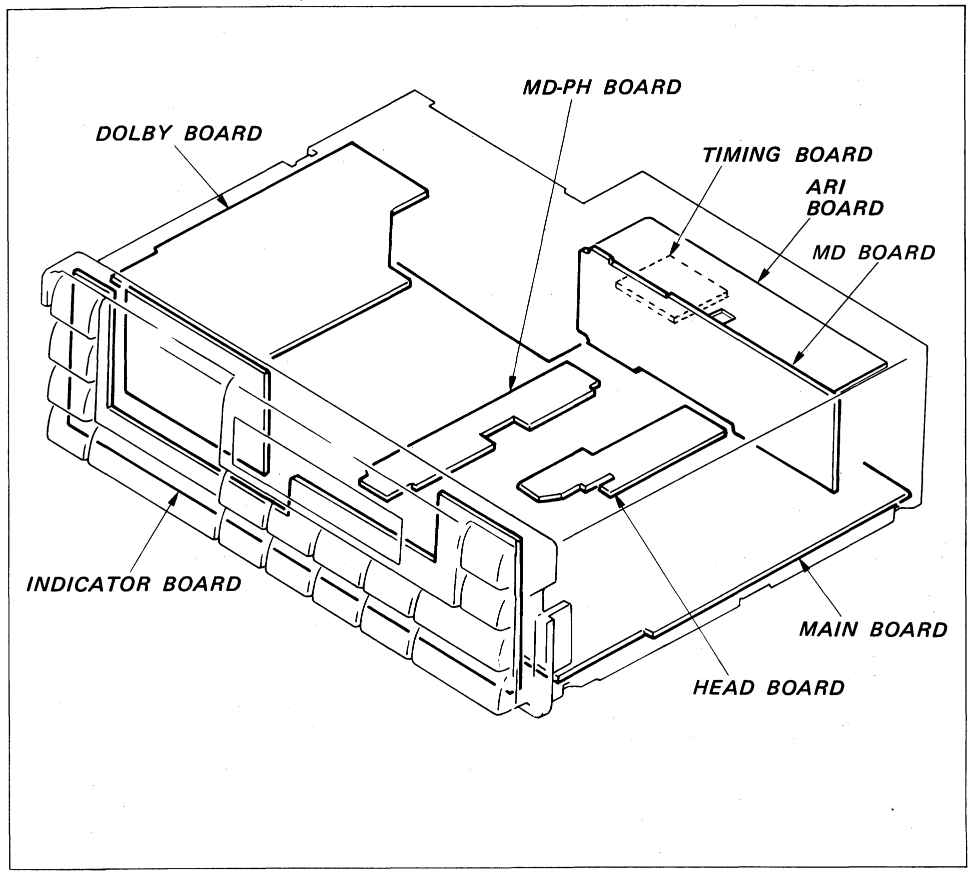
• IC401 M54516P


NC ⑭
O1 ⑬
O2 ⑫
O3 ⑪
O4 ⑩
O5 ⑨
NC ⑧
① NC
② IN1
③ IN2
④ IN3
⑤ IN4
⑥ IN5
⑦ GND

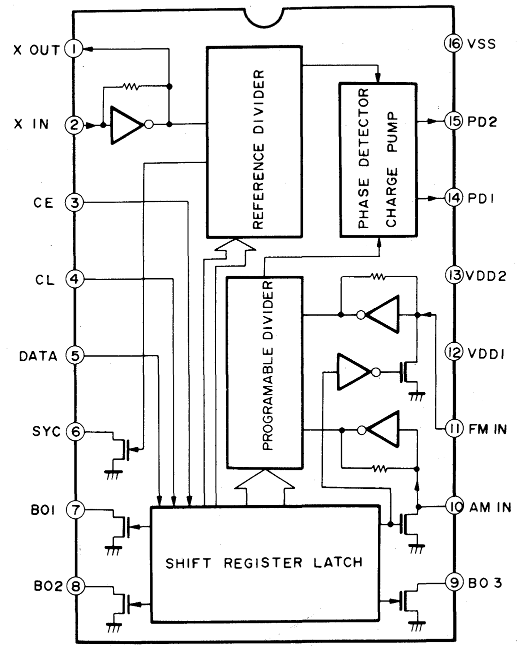
• IC603 BA338


⑨ Vcc
⑧ OUT
⑦ NOISE FILTER
⑥ MUTING
⑤ GND
④ NFB
③ IN
② SENSE TIMING
① PULSE WIDTH
B+
F.F.
R
S
Q
PRE AMP
COMPARATOR
COMPARATOR
COMPARATOR

4.4 CIRCUIT BOARDS LOCATION


MD-PH BOARD
DOLBY BOARD
TIMING BOARD
ARI BOARD
MD BOARD
INDICATOR BOARD
MAIN BOARD
HEAD BOARD

• IC604 LM7001

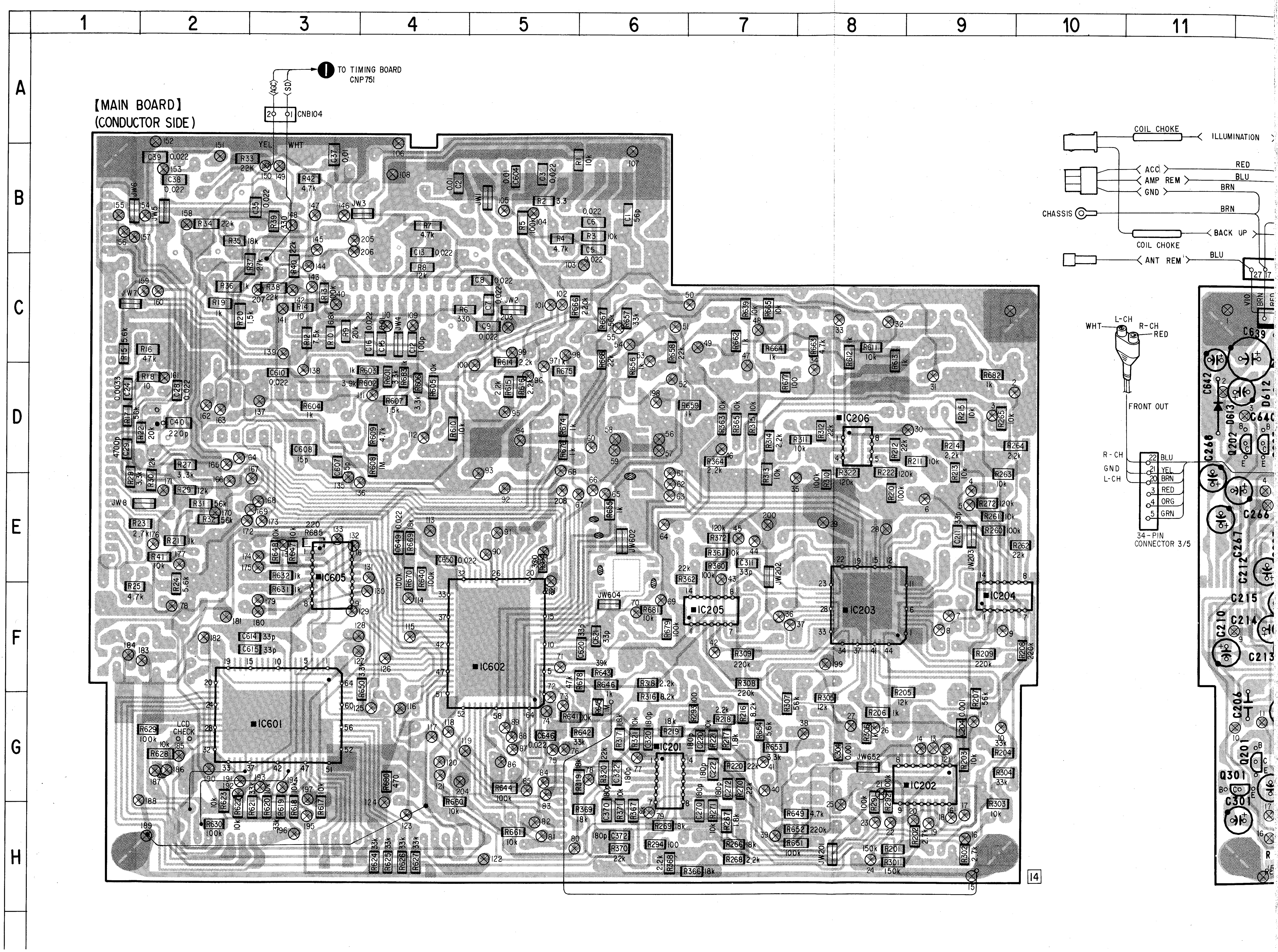

X OUT ①
X IN ②
CE ③
CL ④
DATA ⑤
SYC ⑥
BO1 ⑦
BO2 ⑧
REFERENCE DIVIDER
PHASE DETECTOR CHARGE PUMP
PROGRAMABLE DIVIDER
SHIFT REGISTER LATCH
⑯ VSS
⑮ PD2
⑭ PD1
⑬ VDD2
⑫ VDD1
⑪ FM IN
⑩ AM IN
⑨ BO3

4-5. PRINTED WIRING BOARDS

— Main Board —

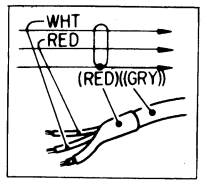
• Semiconductor Locations

Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D1	C-18	D611	F-17	Q6	B-19
D2	E-19	D612	C-12	Q7	B-18
D3	B-18	D613	D-11	Q8	C-18
D4	C-19	D614	G-13	Q9	C-18
D201	G-12	D615	D-14	Q201	G-11
D301	G-13	D616	G-17	Q202	D-11
D501	E-27	D617	D-15	Q203	D-12
D502	E-28	D618	C-14	Q301	G-11
D503	E-29	D619	E-18	Q302	D-14
D504	E-30	D620	E-18	Q303	D-14
D505	F-30	D621	E-18	Q601	D-17
D506	F-30	D622	E-18	Q602	D-17
D507	G-30	D623	F-18	Q603	D-17
D508	F-26	D624	F-15	Q604	D-17
D509	E-26	D625	C-13	Q605	D-16
D510	F-25	D626	C-15	Q606	C-13
D511	E-25	D627	D-15	Q607	C-13
D512	F-24			Q608	D-12
D513	E-24	IC1	C-17	Q609	D-16
D514	F-23	IC2	D-19	Q610	D-16
D515	E-23	IC201	G-6	Q611	C-14
D516	F-23	IC202	G-8	Q612	D-14
D517	E-23	IC203	F-8	Q613	H-16
D518	F-22	IC204	F-9	Q614	C-14
D519	E-22	IC205	F-7	Q615	C-13
D520	G-22	IC206	D-8	Q616	C-13
D521	F-22	IC601	G-3	Q619	D-15
D601	D-16	IC602	F-5	Q620	D-15
D602	C-12	IC603	G-13	Q621	D-16
D603	D-15	IC604	D-18	Q625	C-15
D604	D-14	IC605	E-3	Q626	C-15
D605	D-14			Q627	D-15
D606	C-15	Q1	B-15	Q628	F-15
D607	C-15	Q2	C-15	Q629	F-15
D608	D-15	Q3	B-15	Q630	G-17
D609	F-15	Q4	C-18		
D610	F-17	Q5	F-19		

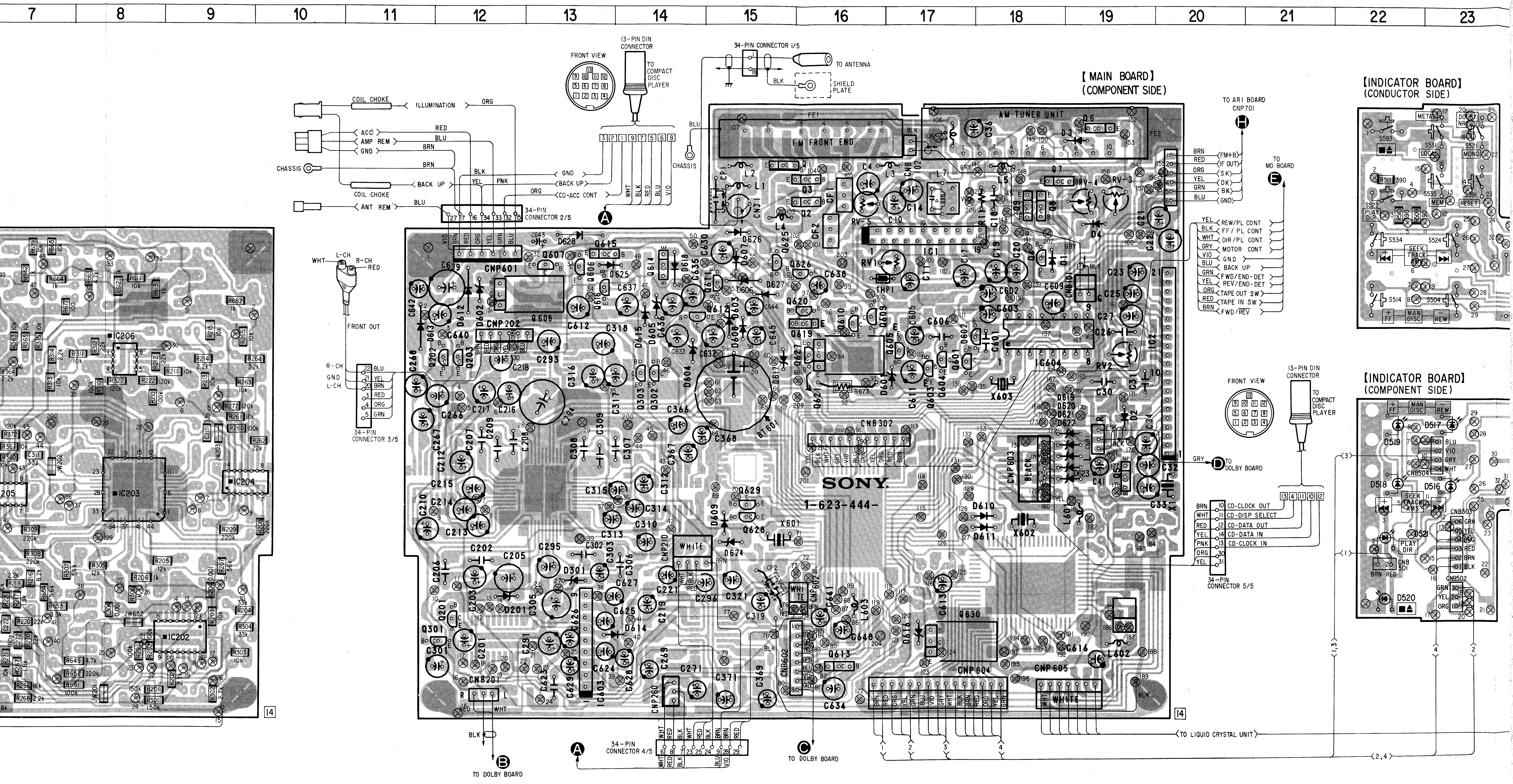

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
[MAIN BOARD]
(CONDUCTOR SIDE)
TO TIMING BOARD CNP751
(ACC)
(SD)
CNB104
YEL
WHT
■IC601
■IC602
■IC605
■IC201
■IC202
■IC203
■IC204
■IC205
■IC206
LCD CHECK
COIL CHOKE
ILLUMINATION
ACC
AMP REM
GND
RED
BLU
BRN
CHASSIS
BACK UP
ANT REM
L-CH
R-CH
WHT
RED
FRONT OUT
R-CH
GND
L-CH
BLU
YEL
BRN
RED
ORG
GRN
34-PIN CONNECTOR 3/5
14

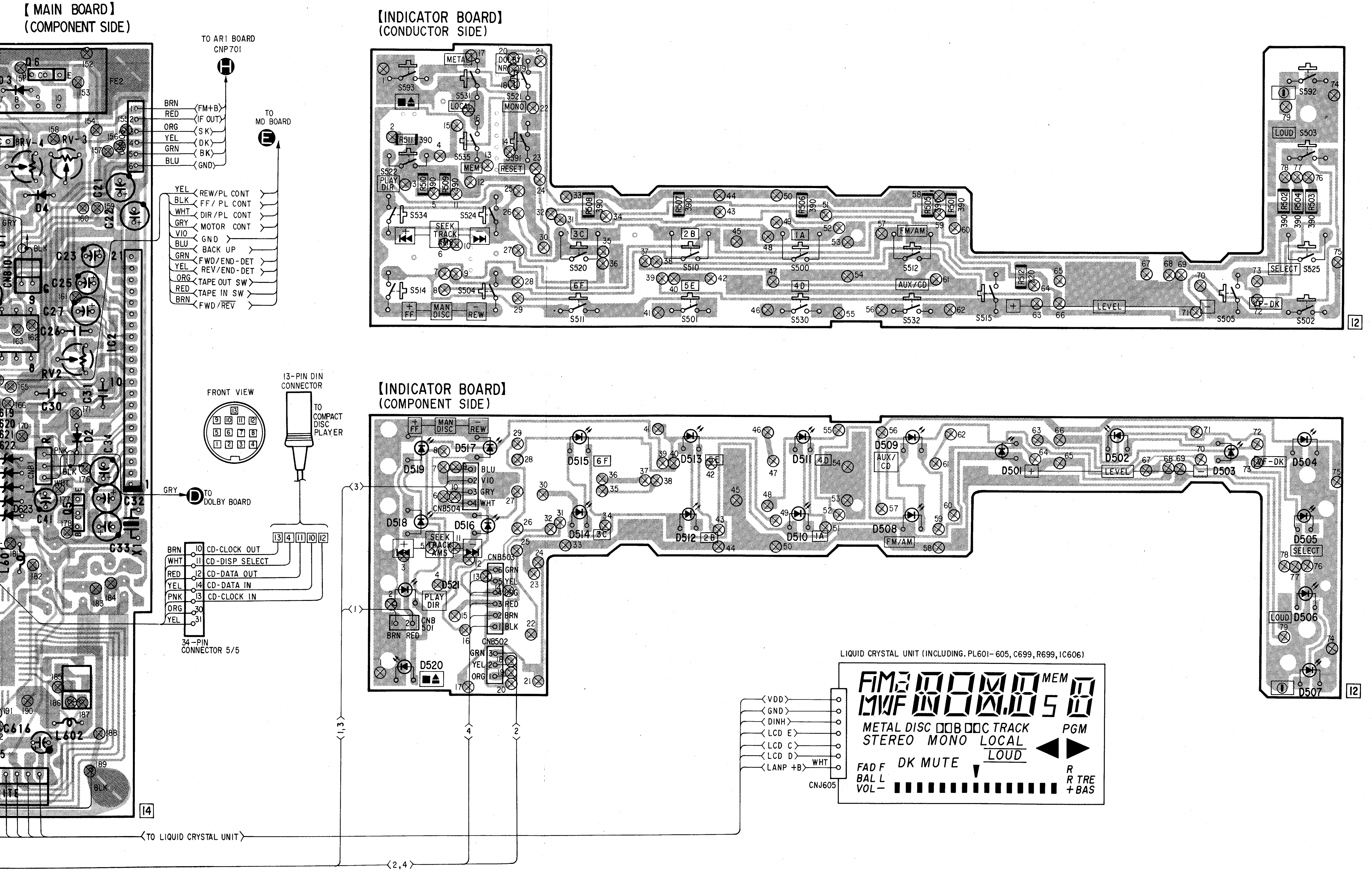
Note:

- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

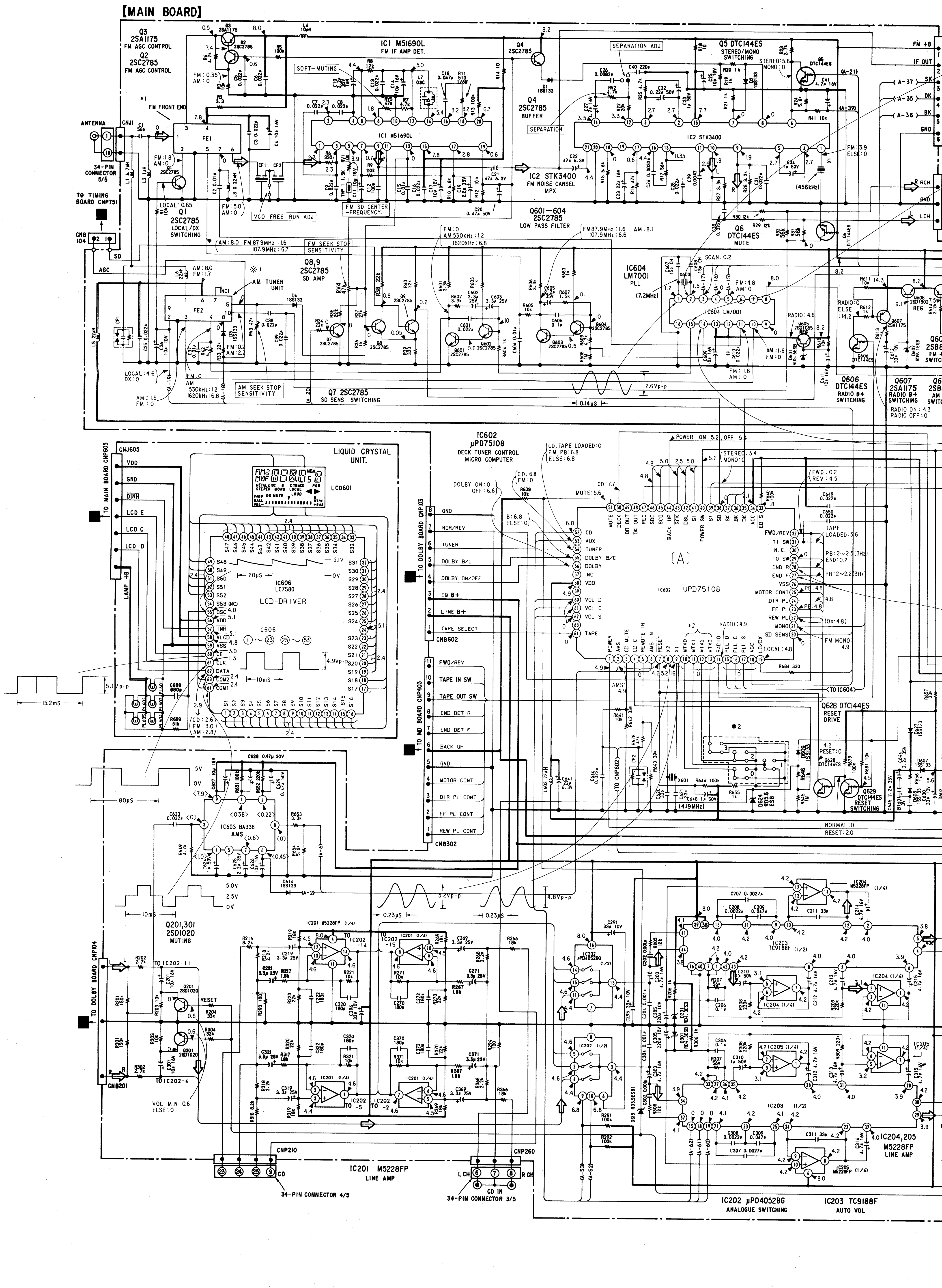
- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ⊗ : Through hole.
- ▨ : Component-side pattern.


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
【MAIN BOARD】
(COMPONENT SIDE)
【INDICATOR BOARD】
(CONDUCTOR SIDE)
【INDICATOR BOARD】
(COMPONENT SIDE)
13-PIN DIN CONNECTOR
TO COMPACT DISC PLAYER
FRONT VIEW
34-PIN CONNECTOR 1/5
TO ANTENNA
SHIELD PLATE
COIL CHOKE
ILLUMINATION
ACC
AMP REM
GND
CHASSIS
BACK UP
ANT REM
CD-ACC CONT
34-PIN CONNECTOR 2/5
L-CH
R-CH
FRONT OUT
34-PIN CONNECTOR 3/5
34-PIN CONNECTOR 4/5
34-PIN CONNECTOR 5/5
TO ARI BOARD CNP701
TO MD BOARD
TO DOLBY BOARD
TO LIQUID CRYSTAL UNIT
FM FRONT END
AM TUNER UNIT
SONY
1-623-444-
REW/PL CONT
FF/PL CONT
DIR/PL CONT
MOTOR CONT
GND
BACK UP
FWD/END-DET
REV/END-DET
TAPE OUT SW
TAPE IN SW
FWD/REV
CD-CLOCK OUT
CD-DISP SELECT
CD-DATA OUT
CD-DATA IN
CD-CLOCK IN
(FM+B)
(IF OUT)
(SK)
(DK)
(BK)
(GND)
IC203
IC202
IC204
IC206
IC601
IC602
IC604
Q630
CNP601
CNP202
CNP604
CNP605
CNB201
CNB302
CNB603
RV1
RV2
BT601
X601
X602
X603
A
B
C
D
E
H

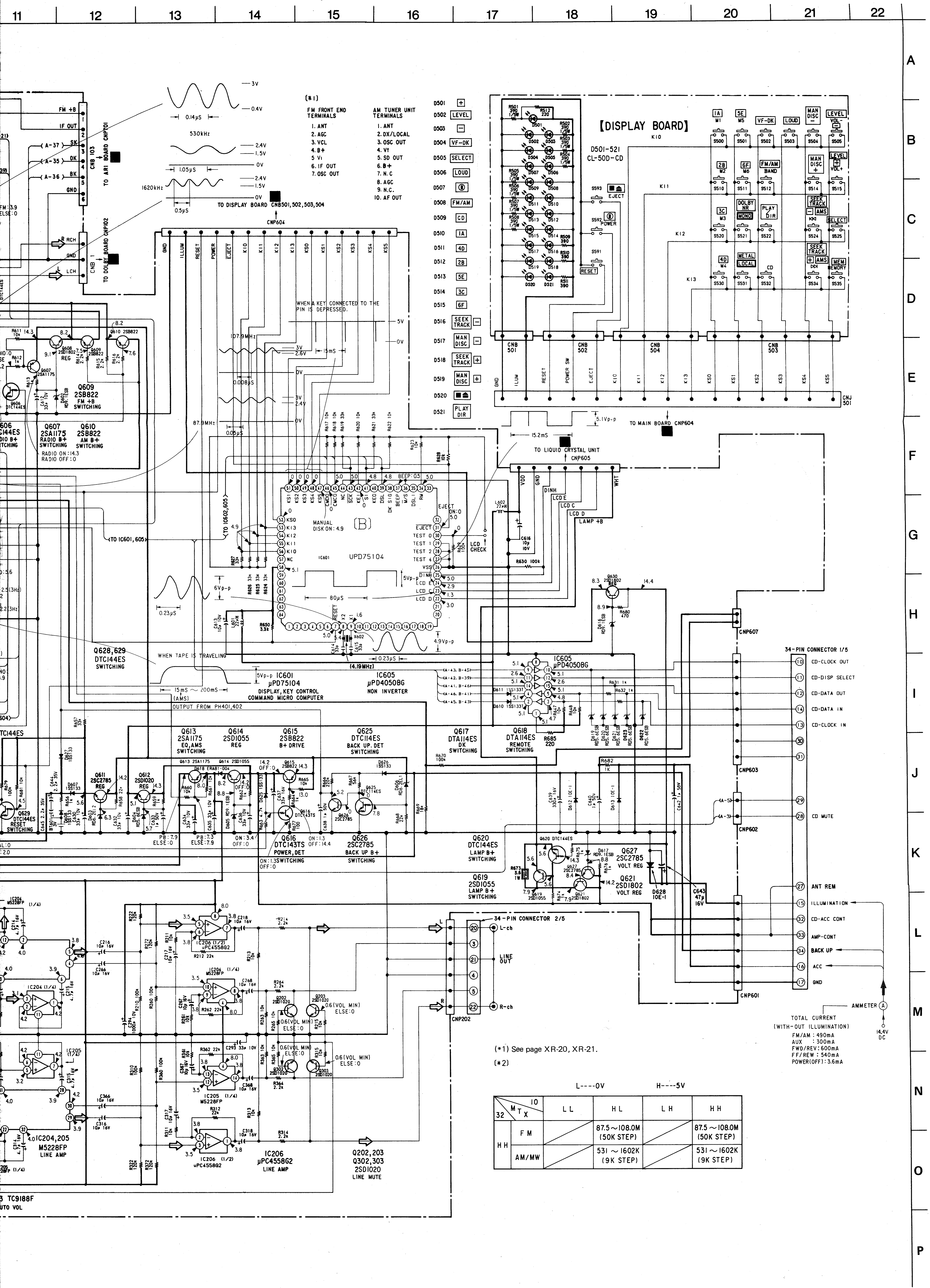

【MAIN BOARD】
(COMPONENT SIDE)
TO ARI BOARD CNP701
TO MD BOARD
BRN RED ORG YEL GRN BLU
FM+B
IF OUT
SK
DK
BK
GND
REW/PL CONT
FF/PL CONT
DIR/PL CONT
MOTOR CONT
GND
BACK UP
FWD/END-DET
REV/END-DET
TAPE OUT SW
TAPE IN SW
FWD/REV
FRONT VIEW
13-PIN DIN CONNECTOR
TO COMPACT DISC PLAYER
TO DOLBY BOARD
CD-CLOCK OUT
CD-DISP SELECT
CD-DATA OUT
CD-DATA IN
CD-CLOCK IN
34-PIN CONNECTOR 5/5
TO LIQUID CRYSTAL UNIT
【INDICATOR BOARD】
(CONDUCTOR SIDE)
【INDICATOR BOARD】
(COMPONENT SIDE)
METAL
DOLBY NR
LOCAL
MONO
MEM
RESET
PLAY DIR
SEEK TRACK AMS
MAN DISC
REW
FF
LOUD
SELECT
LEVEL
FM/AM
AUX/CD
VF-DK
LIQUID CRYSTAL UNIT (INCLUDING. PL601-605, C699, R699, IC606)
VDD
GND
DINH
LCD E
LCD C
LCD D
LANP +B
CNJ605
METAL DISC TRACK
STEREO MONO LOCAL
LOUD
DK MUTE
FAD F BAL L VOL−
R R TRE +BAS
PGM
MEM
12
14

4-6. SCHEMATIC DIAGRAM • See page XR-34 for note.

– Main Board –



【MAIN BOARD】
Q3 2SA1175 FM AGC CONTROL
Q2 2SC2785 FM AGC CONTROL
ANTENNA
34-PIN CONNECTOR 5/5
TO TIMING BOARD CNP751
FM FRONT END
FE1
IC1 M51690L FM IF AMP DET.
SOFT-MUTING
VCO FREE-RUN ADJ
FM SD CENTER -FREQUENCY.
Q4 2SC2785 BUFFER
SEPARATION ADJ
SEPARATION
IC2 STK3400 FM NOISE CANSEL MPX
Q5 DTC144ES STEREO/MONO SWITCHING
Q1 2SC2785 LOCAL/DX SWITCHING
Q601–604 2SC2785 LOW PASS FILTER
Q6 DTC144ES MUTE
FM SEEK STOP SENSITIVITY
Q8,9 2SC2785 SD AMP
AM TUNER UNIT
FE2
IC604 LM7001 PLL
AM SEEK STOP SENSITIVITY
Q7 2SC2785 SD SENS SWITCHING
Q606 DTC144ES RADIO B+ SWITCHING
Q607 2SA1175 RADIO B+ SWITCHING
Q608 2SD1802 REG
LIQUID CRYSTAL UNIT.
LCD601
IC606 LC7580 LCD-DRIVER
TO MAIN BOARD CNP605
CNJ605
IC602 μPD75108 DECK TUNER CONTROL MICRO COMPUTER
TO DOLBY BOARD CNP103
CNB602
TO MD BOARD CNP403
CNB302
IC603 BA338 AMS
Q628 DTC144ES RESET DRIVE
Q629 DTC144ES RESET SWITCHING
Q201,301 2SD1020 MUTING
TO DOLBY BOARD CNP104
CNB201
IC201 M5228FP LINE AMP
34-PIN CONNECTOR 4/5
CD IN 34-PIN CONNECTOR 3/5
IC202 μPD4052BG ANALOGUE SWITCHING
IC203 TC9188F AUTO VOL
IC204,205 M5228FP LINE AMP


11
12
13
14
15
16
17
18
19
20
21
22
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
【DISPLAY BOARD】
D501-521
CL-50D-CD
S593 EJECT
S592 POWER
S591 RESET
(*1)
FM FRONT END TERMINALS
1. ANT
2. AGC
3. VCL
4. B+
5. Vt
6. IF OUT
7. OSC OUT
AM TUNER UNIT TERMINALS
1. ANT
2. DX/LOCAL
3. OSC OUT
4. Vt
5. SD OUT
6. B+
7. N.C
8. AGC
9. N.C.
10. AF OUT
D501 +
D502 LEVEL
D503 −
D504 VF-DK
D505 SELECT
D506 LOUD
D507
D508 FM/AM
D509 CD
D510 1A
D511 4D
D512 2B
D513 5E
D514 3C
D515 6F
D516 SEEK TRACK −
D517 MAN DISC −
D518 SEEK TRACK +
D519 MAN DISC +
D520
D521 PLAY DIR
CNB 103 TO ARI BOARD CNPT01
CNB 1 TO DOLBY BOARD CNP102
FM +B
IF OUT
SK
DK
BK
GND
RCH
LCH
A-37
A-35
A-36
530kHz
1620kHz
TO DISPLAY BOARD CNB501,502,503,504
CNP604
GND
ILLUM
RESET
POWER
EJECT
K10
K11
K12
K13
KS0
KS1
KS2
KS3
KS4
KS5
CNB 501
CNB 502
CNB 504
CNB 503
CNJ 501
POWER SW
TO MAIN BOARD CNP604
TO LIQUID CRYSTAL UNIT CNP605
VDD
DINH
LCD E
LCD C
LCD D
LAMP +B
WHT
WHEN A KEY CONNECTED TO THE PIN IS DEPRESSED.
107.9MHz
87.9MHz
MANUAL DISK ON: 4.9
IC601 UPD75104
EJECT ON:0
TEST 0
TEST 1
TEST 2
TEST 4
VSS
LCD CHECK
(TO IC602,605)
(TO IC601,605)
WHEN TAPE IS TRAVELING
Q628,629 DTC144ES SWITCHING
IC601 μPD75104 DISPLAY, KEY CONTROL COMMAND MICRO COMPUTER
IC605 μPD4050BG NON INVERTER
OUTPUT FROM PH401,402
(4.19MHz)
Q607 2SA1175 RADIO B+ SWITCHING
Q610 2SB822 AM B+ SWITCHING
RADIO ON:14.3
RADIO OFF:0
Q609 2SB822 FM +B SWITCHING
Q613 2SA1175 EQ,AMS SWITCHING
Q614 2SD1055 REG
Q615 2SB822 B+ DRIVE
Q625 DTC114ES BACK UP,DET SWITCHING
Q617 DTA114ES DX SWITCHING
Q618 DTA114ES REMOTE SWITCHING
Q611 2SC2785 REG
Q612 2SD1020 REG
Q616 DTC143TS POWER,DET
Q626 2SC2785 BACK UP B+ SWITCHING
Q620 DTC144ES LAMP B+ SWITCHING
Q619 2SD1055 LAMP B+ SWITCHING
Q627 2SC2785 VOLT REG
Q621 2SD1802 VOLT REG
Q629 DTC144ES RESET SWITCHING
Q630 2SD1802 REG
34-PIN CONNECTOR 1/5
CD-CLOCK OUT
CD-DISP SELECT
CD-DATA OUT
CD-DATA IN
CD-CLOCK IN
CD MUTE
ANT REM
ILLUMINATION
CD-ACC CONT
AMP-CONT
BACK UP
ACC
GND
CNP607
CNP603
CNP602
CNP601
34-PIN CONNECTOR 2/5
L-ch
LINE OUT
R-ch
CNP202
AMMETER
TOTAL CURRENT (WITH-OUT ILLUMINATION)
FM/AM : 490mA
AUX : 300mA
FWD/REV : 600mA
FF/REW : 540mA
POWER(OFF) : 3.6mA
14.4V DC
IC204,205 M5228FP LINE AMP
IC206 μPC4558G2 LINE AMP
Q202,203 Q302,303 2SD1020 LINE MUTE
TC9188F
AUTO VOL

(*1) See page XR-20, XR-21.

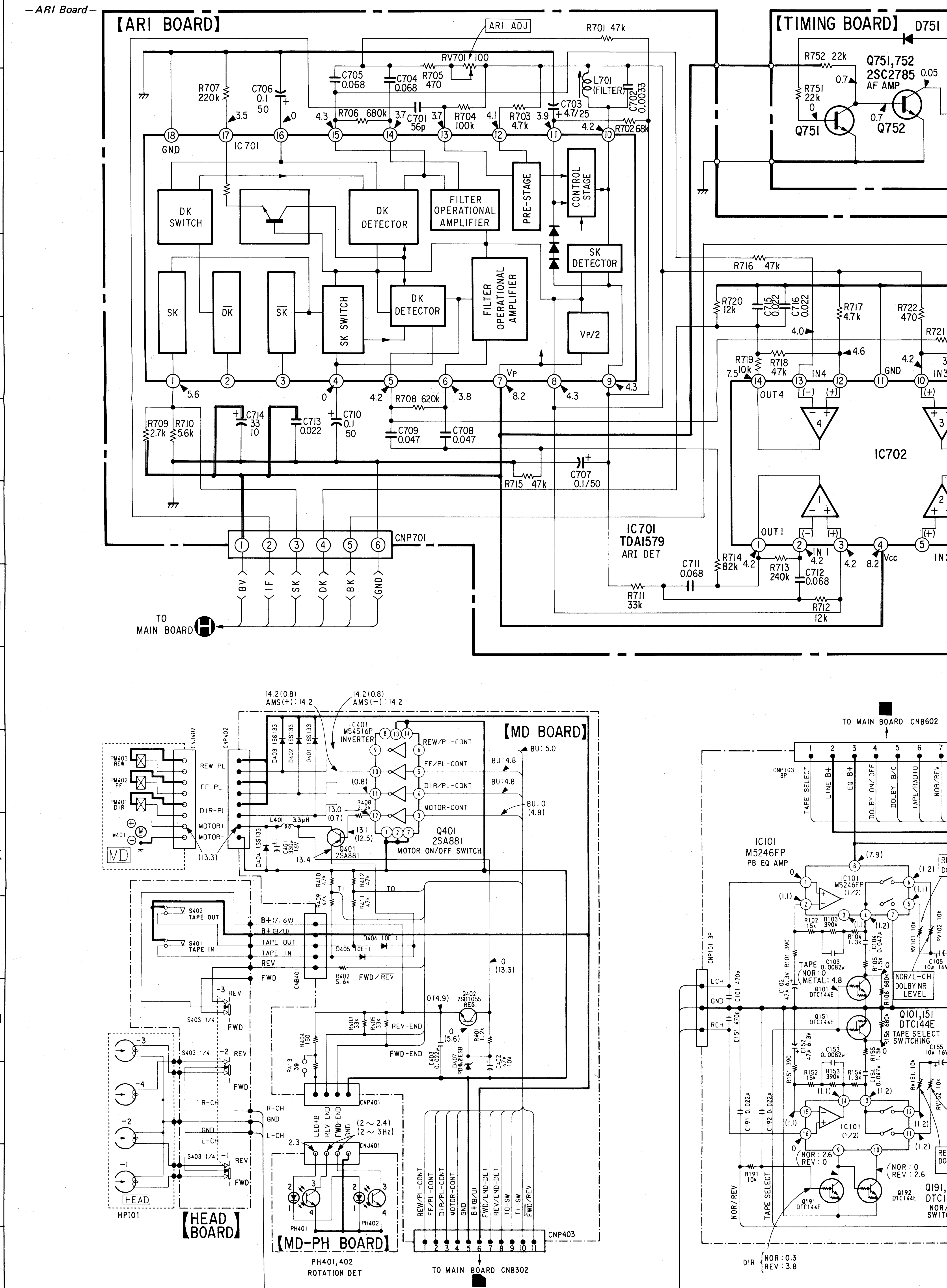
(*2)

L----0V H----5V

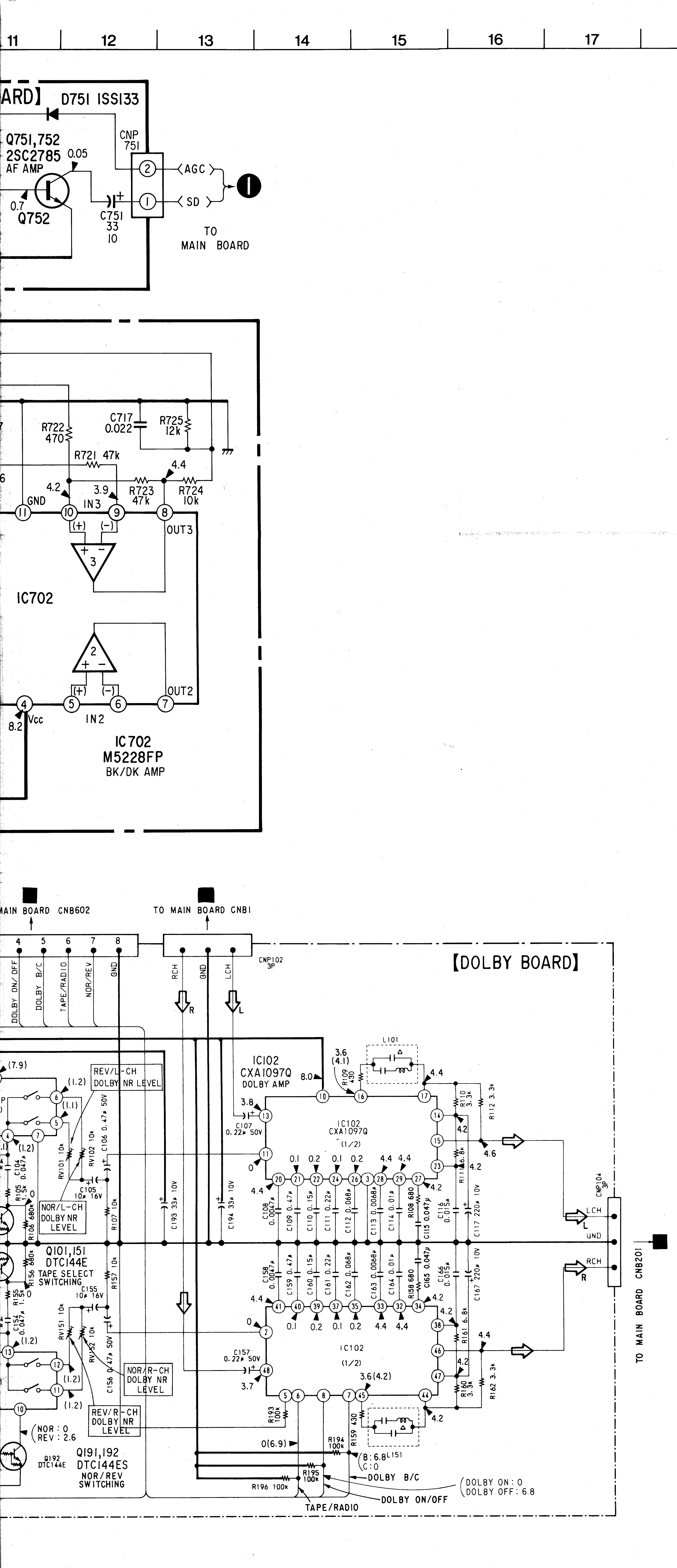
32 \ M T X 10		LL	HL	LH	HH
HH	FM		87.5～108.0M (50K STEP)		87.5～108.0M (50K STEP)
	AM/MW		531～1602K (9K STEP)		531～1602K (9K STEP)

4-7. SCHEMATIC DIAGRAM

– ARI Board –



【ARI BOARD】
【TIMING BOARD】
【MD BOARD】
【HEAD BOARD】
【MD-PH BOARD】
ARI ADJ
R701 47k
RV701 100
R707 220k
C706 0.1 50
C705 0.068
C704 0.068
R705 470
R706 680k
C701 56p
R704 100k
R703 4.7k
C703 4.7/25
L701 (FILTER)
C702 0.0033
R702 68k
GND
IC701
DK SWITCH
DK DETECTOR
FILTER OPERATIONAL AMPLIFIER
PRE-STAGE
CONTROL STAGE
SK DETECTOR
SK
DK
SK SWITCH
VP/2
VP
R709 2.7k
R710 5.6k
C714 33 10
C713 0.022
C710 0.1 50
R708 620k
C709 0.047
C708 0.047
R715 47k
C707 0.1/50
CNP701
8V
IF
SK
DK
BK
GND
TO MAIN BOARD
IC701 TDA1579 ARI DET
C711 0.068
R711 33k
R714 82k
R713 240k
C712 0.068
R712 12k
R716 47k
R720 12k
C715 0.022
C716 0.022
R717 4.7k
R722 470
R721
R719 10k
R718 47k
OUT4
IN4
OUT1
IN1
Vcc
IC702
D751
R752 22k
R751 22k
Q751,752 2SC2785 AF AMP
Q751
Q752
14.2(0.8) AMS(+):14.2
14.2(0.8) AMS(−):14.2
IC401 M54516P INVERTER
REW/PL-CONT
FF/PL-CONT
DIR/PL-CONT
MOTOR-CONT
BU: 5.0
BU: 4.8
BU: 0 (4.8)
D403 1SS133
D402 1SS133
D401 1SS133
D404 1SS133
L401 3.3µH
C401 330µ 16V
R408 2.2k
Q401 2SA881
Q401 2SA881 MOTOR ON/OFF SWITCH
CNP402
CNJ402
PM403 REW
PM402 FF
PM401 DIR
M401
MD
REW-PL
FF-PL
DIR-PL
MOTOR+
MOTOR−
S402 TAPE OUT
S401 TAPE IN
S403 1/4
REV
FWD
B+(7.6V)
B+(B/U)
TAPE-OUT
TAPE-IN
CNB401
R409 47k
R410 47k
R411 47k
R412 47k
TI
TO
D405 10E-1
D406 10E-1
R402 5.6k
FWD/REV
Q402 2SD1055 REG.
R403 33k
R405 33k
REV-END
FWD-END
R404 150
R413 39
C403 0.022µ
D407 RD6.2ESB
R401 1.2k
C402 47µ 10V
CNP401
CNJ401
LED+B
(2 ~ 2.4)
(2 ~ 3Hz)
R-CH
L-CH
HP101
HEAD
PH401
PH402
PH401,402 ROTATION DET
REW/PL-CONT
FF/PL-CONT
DIR/PL-CONT
MOTOR-CONT
GND
B+(B/U)
FWD/END-DET
REV/END-DET
TO-SW
TI-SW
FWD/REV
CNP403
TO MAIN BOARD CNB302
TO MAIN BOARD CNB602
CNP103 8P
TAPE SELECT
LINE B+
EQ B+
DOLBY ON/OFF
DOLBY B/C
TAPE/RADIO
NOR/REV
IC101 M5246FP PB EQ AMP
IC101 M5246FP (1/2)
CNP101 3P
LCH
RCH
C101 470p
C151 470p
R101 390
C102 47µ 6.3V
R102 15k
R103 390k
R104 1.3k
C104 0.047µ
C103 0.0082µ
R105 15k
TAPE (NOR: 0 METAL: 4.8
Q101 DTC144E
R106 680k
RV101 10k
C105 10µ 16V
NOR/L-CH DOLBY NR LEVEL
Q151 DTC144E
R156 680k
Q101,151 DTC144E TAPE SELECT SWITCHING
C155 10µ 16V
C152 47µ 6.3V
C153 0.0082µ
R155 15k
R151 390
R152 15k
R153 390k
R154 1.3k
C154 0.047µ
RV151 10k
C191 0.022µ
C192 0.022µ
R191 10k
Q191 DTC144E
Q192 DTC144E
(NOR: 2.6 REV: 0
(NOR: 0 REV: 2.6
Q191, DTC NOR/ SWITC
DIR {NOR: 0.3 REV: 3.8


D751 ISS133
Q751,752
2SC2785
AF AMP
Q752
C751 33 10
CNP 751
AGC
SD
TO MAIN BOARD
R722 470
C717 0.022
R725 12k
R721 47k
R723 47k
R724 10k
GND
IN3
OUT3
IC702
OUT2
Vcc
IN2
IC702
M5228FP
BK/DK AMP
MAIN BOARD CNB602
TO MAIN BOARD CNB1
DOLBY ON/OFF
DOLBY B/C
TAPE/RADIO
NOR/REV
GND
RCH
GND
LCH
CNP102 3P
[DOLBY BOARD]
IC102
CXA1097Q
DOLBY AMP
L101
REV/L-CH DOLBY NR LEVEL
NOR/L-CH DOLBY NR LEVEL
NOR/R-CH DOLBY NR LEVEL
REV/R-CH DOLBY NR LEVEL
Q101,151
DTC144E
TAPE SELECT SWITCHING
Q191,192
DTC144ES
NOR/REV SWITCHING
NOR : 0
REV : 2.6
CNP104 3P
TO MAIN BOARD CNB201
DOLBY B/C
DOLBY ON/OFF
TAPE/RADIO
DOLBY ON : 0
DOLBY OFF : 6.8
B : 6.8
C : 0

Note on Schematic Diagram (MAIN Board):

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ⇨: FM signal
- ▭ : nonflammable resistor.
- —— : B+bus.
- ☐ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is 14.4 V and fed with regulated dc power supply from BACK UP and ACC terminal.
  No Mark: FM or AM
  < > : TAPE
- Waveforms are taken to ground in no-signal mode by using oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Switches:

Ref. No.	Switch	Position
S500	1	OFF
S501	5	OFF
S502	VF-DK	OFF
S503	LOUD	OFF
S504	MAN DISC –	OFF
S505	LEVEL –	OFF
S510	2	OFF
S511	6	OFF
S512	FM/AM	FM
S514	MAN DISC +	OFF
S515	LEVEL +	OFF
S520	3	OFF
S521	DOLBY NR	OFF
S522	PLAY DIR	OFF
S524	SEEK TRACK AMS –	OFF
S525	SELECT	OFF
S530	4	OFF
S531	METAL	OFF
S532	AUX/CD	OFF
S534	SEEK TRACK AMS +	OFF
S535	MEM	OFF
S591	RESET	OFF
S592	① (POWER)	OFF
S593	(EJECT)	OFF

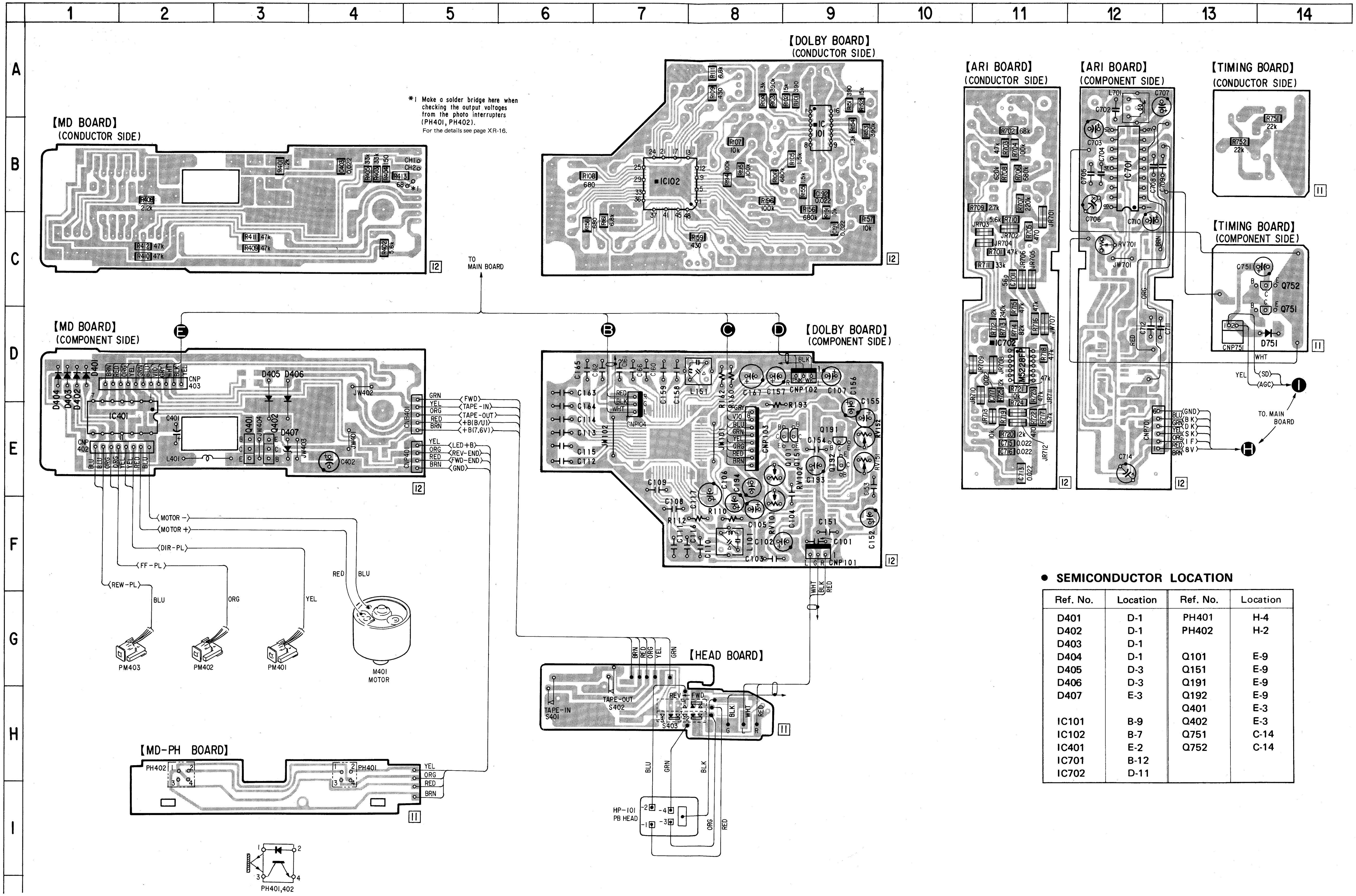
Note on Schematic Diagram (ARI Board):

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ⇨: FM signal
- ▭ : nonflammable resistor.
- —— : B+ bus.
- Power voltage is 14.4 V and fed with regulated dc power supply from BACK UP and ACC terminal.
  No Mark: FM or AM
  ( ) : PLAY BACK
- Waveforms are taken to ground in no-signal mode by using oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Switches:

Ref. No.	Switch	Position
S401	TAPE-IN	OFF
S402	TAPE-OUT	OFF
S403	FWD/REV	FWD

4-8. PRINTED WIRING BOARDS

— ARI Board —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A
B
C
D
E
F
G
H
I
【MD BOARD】
(CONDUCTOR SIDE)
【DOLBY BOARD】
(CONDUCTOR SIDE)
【ARI BOARD】
(CONDUCTOR SIDE)
【ARI BOARD】
(COMPONENT SIDE)
【TIMING BOARD】
(CONDUCTOR SIDE)
【TIMING BOARD】
(COMPONENT SIDE)
【MD BOARD】
(COMPONENT SIDE)
【DOLBY BOARD】
(COMPONENT SIDE)
【HEAD BOARD】
【MD-PH BOARD】
TO MAIN BOARD
TO. MAIN BOARD
IC401
IC101
IC102
IC701
IC702
M5228FP
CNP402
CNP403
CN401
CNB401
CNP101
CNP102
CNP103
CNP104
CNP701
CNP751
(FWD)
(TAPE-IN)
(TAPE-OUT)
(+B(B/U))
(+B(7.6V))
(LED+B)
(REV-END)
(FWD-END)
(GND)
(MOTOR −)
(MOTOR +)
(DIR-PL)
(FF-PL)
(REW-PL)
(SD)
(AGC)
(GND)
(BK)
(DK)
(SK)
(IF)
(8V)
PM403
PM402
PM401
M401
MOTOR
TAPE-IN
S401
TAPE-OUT
S402
S403
REV
FWD
HP-101
PB HEAD
PH402
PH401
PH401,402

*1 Make a solder bridge here when checking the output voltages from the photo interrupters (PH401, PH402).
For the details see page XR-16.

- **SEMICONDUCTOR LOCATION**

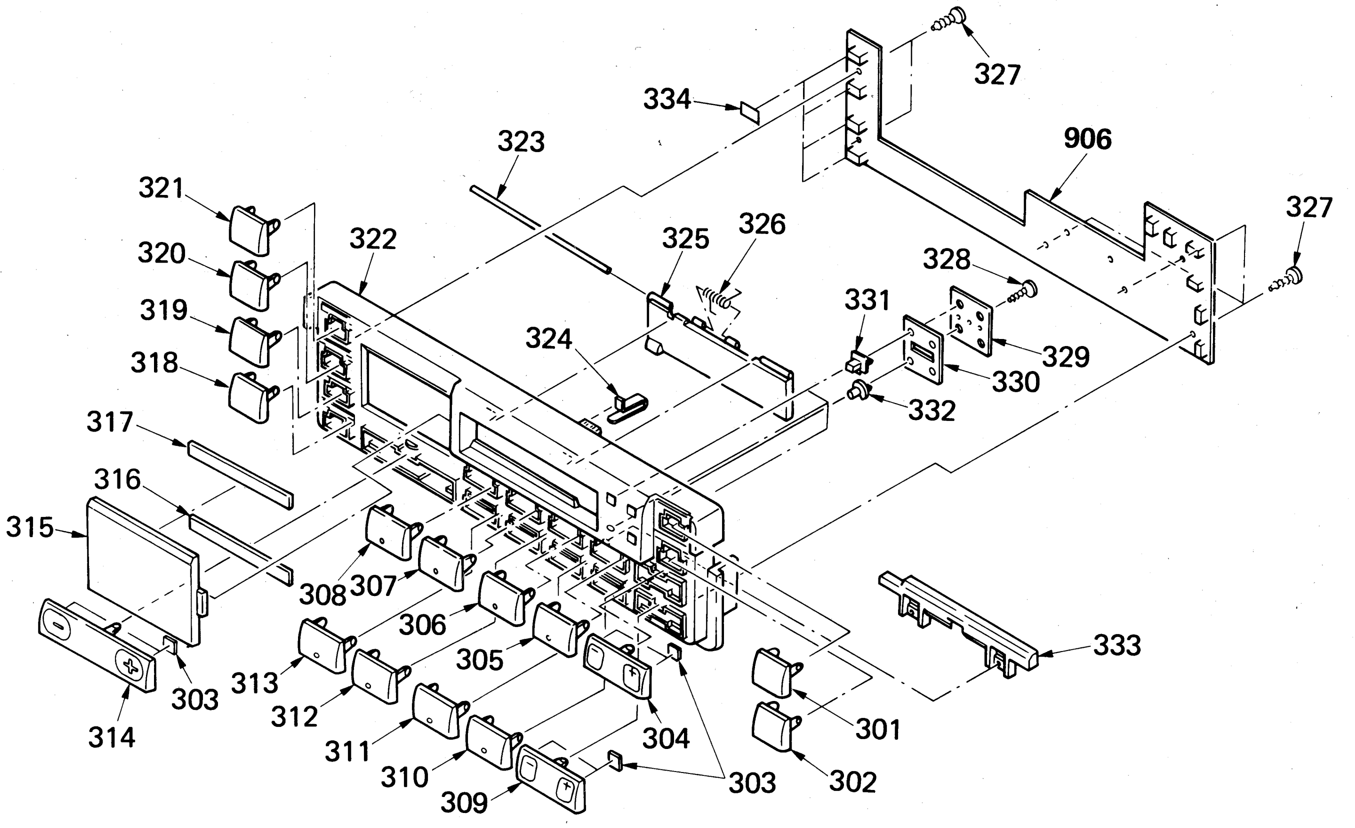
Ref. No.	Location	Ref. No.	Location
D401	D-1	PH401	H-4
D402	D-1	PH402	H-2
D403	D-1		
D404	D-1	Q101	E-9
D405	D-3	Q151	E-9
D406	D-3	Q191	E-9
D407	E-3	Q192	E-9
		Q401	E-3
IC101	B-9	Q402	E-3
IC102	B-7	Q751	C-14
IC401	E-2	Q752	C-14
IC701	B-12		
IC702	D-11		

SECTION 5
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color

(1). GENERAL SECTION 1



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906
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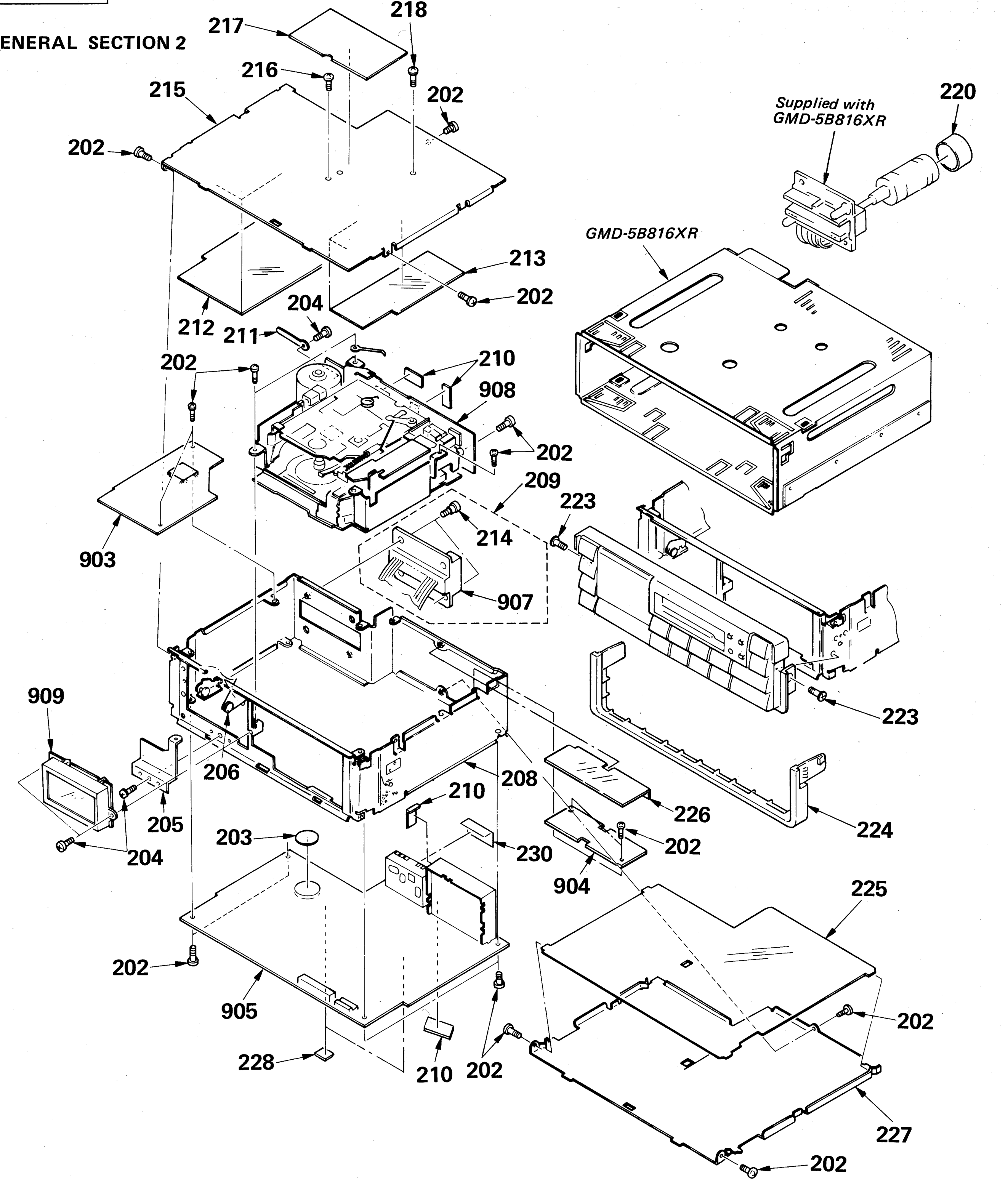
303
302
309

No.	Part No.	Description	Remarks
301	3-342-229-01	BUTTON (D)	
302	3-342-230-01	BUTTON (E)	
303	3-342-205-01	CUSHION (B), BUTTON	
304	3-342-231-01	BUTTON (F)	
305	3-342-234-21	BUTTON (H)	
306	3-342-234-11	BUTTON (H)	
307	3-342-234-01	BUTTON (H)	
308	3-342-235-01	BUTTON (I)	
309	3-342-232-01	BUTTON (G)	
310	3-342-234-51	BUTTON (H)	
311	3-342-234-41	BUTTON (H)	
312	3-342-234-31	BUTTON (H)	
313	3-342-235-31	BUTTON (I)	
314	3-342-236-01	BUTTON (J)	
315	3-342-214-11	PLATE, ORNAMENTAL	
316	*3-342-218-01	SHEET (B), ADHESIVE	
317	3-342-219-01	SHEET (A), ADHESIVE	
318	3-342-228-11	BUTTON (C)	

No.	Part No.	Description	Remarks
319	3-342-227-11	BUTTON (B)	
320	3-342-227-01	BUTTON (B)	
321	3-342-226-01	BUTTON (A)	
322	3-342-249-11	PIECE, NOSE	
323	3-325-708-01	SHAFT, CASSETTE DOOR	
324	3-342-206-01	SPRING	
325	A-3243-203-A	DOOR ASSY, CASSETTE	
326	3-342-222-01	SPRING	
327	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
328	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
329	*3-342-217-01	RETAINER, CUSHION	
330	3-342-220-01	CUSHION (A), BUTTON	
331	3-342-216-01	BUTTON (K)	
332	3-342-215-01	BUTTON, RESET	
333	3-342-240-01	ILLUMINATOR (A)	
334	3-327-119-01	SPACER (A)	
906	A-3279-786-A	MOUNTED PCB, INDICATION	

(2). GENERAL SECTION 2



217
218
216
202
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202
220
Supplied with GMD-5B816XR
GMD-5B816XR
213
202
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202
908
202
209
223
903
214
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226
224
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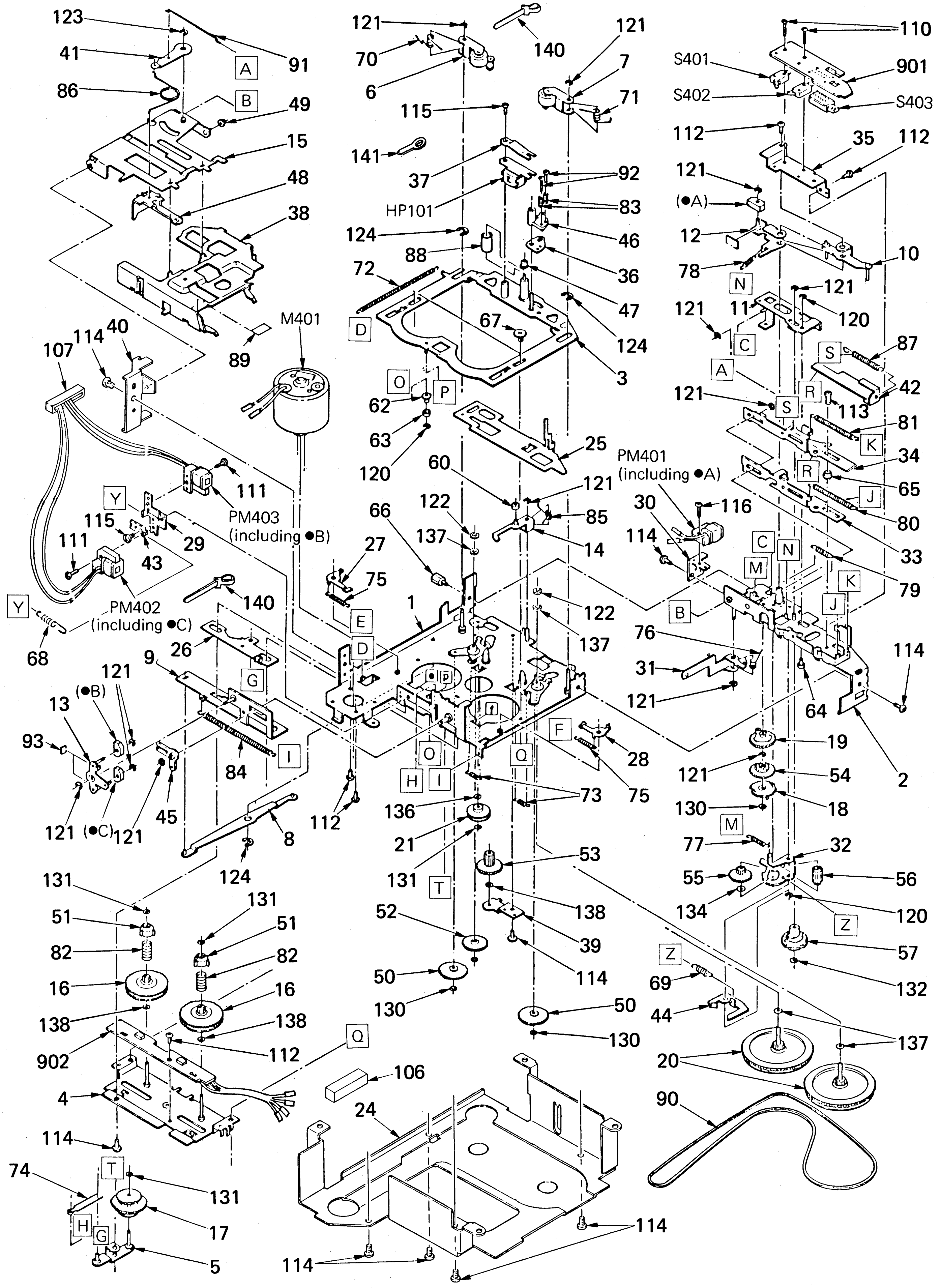
203
230
202
204
904
225
202
905
202
228
210
202
227
202

No.	Part No.	Description	Remarks
202	7-621-770-87	SCREW +PTT 2.6X5 (S)	
203	*3-896-343-01	SHEET, INSULATING	
204	7-621-255-15	SCREW +PTT 2X3 (S)	
205	*3-342-204-01	BRACKET, PC BOARD	
206	3-342-202-01	SPRING	
208	X-3348-202-1	CHASSIS ASSY, MAIN	
209	X-3325-714-1	CORD ASSY	
210	*3-846-067-11	SPACER	
211	*2-277-426-01	CLAMP	
212	3-329-534-03	SHEET (B), INSULATING	
213	3-329-534-01	SHEET (C), INSULATING	
214	3-342-277-01	SCREW, STEP, CONNECTOR	
215	*3-342-245-01	LID, UPPER	
216	3-325-739-01	SCREW, STEP	
217	3-348-205-01	LABEL, MODEL NUMBER (AEP-ARI)	

No.	Part No.	Description	Remarks
218	3-327-110-01	SCREW, STOPPER	
220	3-566-347-00	COVER (A), CONNECTOR	
223	7-621-662-10	SCREW +RK 2.6X5	
224	3-348-207-01	PANEL, SIDE	
225	3-329-534-03	SHEET (A), INSULATING	
226	3-329-534-03	SHEET (D), INSULATING	
227	*3-342-244-01	LID, LOWER	
228	*9-911-841-XX	CUSHION, CASSETTE LID	
230	*3-342-282-01	SHEET (E), INSULATING	
903	*A-3216-268-A	MOUNTED PCB, DOLBY	
904	*A-3216-411-A	MOUNTED PCB, NEW ARI (including TIMING board)	
905	*A-3216-598-A	PC BOARD ASSY, MAIN	
907	*1-559-198-11	CORD (WITH CONNECTOR)	
908	*1-623-447-11	PC BOARD, MD	
909	1-807-833-31	CRYSTAL UNIT, LIQUID	

(3). TAPE TRANSPORT MECHANISM SECTION


123
41
86
91
A
B
49
15
48
38
M401
89
107
114
40
111
PM403
(including ●B)
Y
115
29
111
43
PM402
(including ●C)
Y
68
140
26
9
121
(●B)
13
93
84
G
I
45
121
(●C)
121
8
112
124
131
51
82
16
138
902
4
114
74
T
131
17
H
G
5
131
51
82
16
138
112
Q
106
24
114
114
121
70
6
140
121
7
71
115
141
37
92
83
HP101
46
124
88
36
72
47
D
67
124
3
O
P
62
25
63
120
60
121
85
66
122
137
14
27
75
1
122
137
E
D
F
28
75
O
H
I
Q
73
136
21
131
T
53
52
138
39
114
50
130
50
130
30
116
PM401
(including ●A)
114
110
S401
901
S402
S403
112
35
112
121
(●A)
12
10
78
N
121
121
11
120
C
S
87
A
42
R
121
S
113
81
K
34
R
65
J
80
C
N
M
33
K
79
B
J
76
31
121
64
114
19
121
54
2
130
18
M
77
32
55
56
134
Z
120
57
Z
69
132
44
137
20
90

No.	Part No.	Description	Remarks
1	*3-596-504-01	CHASSIS ASSY, MAIN	
2	*3-596-547-01	CHASSIS ASSY, SUB	
3	3-596-507-01	PLATE ASSY, HEAD	
4	*3-596-541-01	BRACKET ASSY, REEL TABLE	
5	*3-596-539-01	ARM ASSY, FF	
6	3-596-521-01	ARM (F) ASSY, P.R	
7	3-596-523-01	ARM (R) ASSY, P.R	
8	*3-596-538-01	ARM ASSY, POWER	
9	*3-596-533-01	PLATE ASSY, MODE	
10	*3-596-574-01	ARM ASSY, SELECT	
11	*3-596-573-01	PLATE ASSY, POWER	
12	*3-596-575-01	ARM ASSY, CHIP	
13	*3-596-537-01	CRANK ASSY, T	
14	*3-596-508-01	ARM ASSY, TIMING	
15	3-596-581-01	ARM ASSY, HOUSING	
16	3-596-543-01	BUSHING ASSY (PH), REEL	
17	3-596-540-01	GEAR ASSY, FF	
18	3-596-550-01	GEAR ASSY, RVS	
19	3-596-548-01	GEAR ASSY, EJ	
20	3-596-546-01	FLYWHEEL ASSY	
21	3-596-531-01	PULLEY ASSY, TENSION	
24	*3-596-595-01	BRACKET, MD	
25	*3-596-506-01	PLATE, RVS	
26	*3-596-532-01	PLATE, FF	
27	*3-596-502-01	PLATE (F), BRAKE	
28	*3-596-503-01	PLATE (R), BRAKE	
29	3-596-588-01	BRACKET (AT), SOLENOID	
30	*3-596-578-01	BRACKET (B), SOLENOID	
31	*3-596-556-01	PLATE, TRIGGER	
32	3-596-551-01	TRIGGER, RVS	
33	*3-596-566-01	PLATE, EJ	
34	*3-596-569-01	PLATE (S), RESET	
35	*3-596-577-01	BRACKET, SWITCH	
36	3-596-516-01	SEAM, ADJUSTOR	
37	3-596-520-01	SPRING	
38	3-596-584-01	HOUSING, CASSETTE	
39	*3-596-529-01	GUIDE, SHAFT, GEAR	
40	*3-596-593-01	HOLDER, MD PC BOARD	
41	*3-596-564-01	PLATE, CENTER, OVER	
42	*3-596-571-01	PLATE, SLIDE	
43	3-596-587-01	CUSHION, SOLENOID	
44	3-596-590-01	ARM	
45	3-596-536-01	CRANK, FF	
46	*3-596-517-01	ARM, AZIMUTH	
47	3-596-515-01	ROLLER (C), H/P	
48	3-596-585-01	CATCHER	
49	3-596-561-01	ROLLER, H/A	
50	3-596-526-01	GEAR, IDLER	
51	3-596-545-01	SCREWDRIVER, REEL	
52	3-596-527-01	GEAR, DIA.15.2	
53	3-596-528-01	GEAR, INPUT	
54	3-596-549-01	GEAR (A)	
55	3-596-552-01	GEAR (B)	
56	3-596-553-01	GEAR (C)	
57	3-596-555-01	GEAR, MODE	
60	3-596-510-01	ROLLER, TIMING/A	
62	3-596-511-01	ROLLER (A), H/P	
63	3-596-512-01	ROLLER (B), H/P	
64	3-596-558-01	ROLLER, MODE	
65	3-596-568-01	SPACER	
66	*3-596-594-01	STUD (AMR), SPECIAL	
67	3-596-513-01	SCREW	
68	3-596-591-01	SPRING	
69	3-596-589-01	SPRING	
70	3-596-522-01	SPRING	
71	3-596-524-01	SPRING (R)	
72	3-596-514-01	SPRING	
73	3-596-530-01	SPRING	
74	3-596-525-01	ARM (SPG), FF	
75	3-596-505-01	SPRING	
76	3-596-557-01	SPRING	
77	3-596-554-01	SPRING	
78	3-596-576-01	SPRING	
79	3-596-559-01	SPRING	
80	3-596-567-01	SPRING	
81	3-596-570-01	SPRING	
82	3-596-544-01	SPRING	
83	3-596-518-01	LOCK (SPG), AZIMUTH	
84	3-596-535-01	SPRING	
85	3-596-509-01	SPRING	
86	3-596-565-01	REVERSE (SPG)	
87	3-596-572-01	SPRING	
88	7-635-006-69	TUBE	
89	3-831-441-11	CUSHION, CH	
90	3-596-582-01	BELT	
91	3-596-563-01	ROD, OVER CENTER	
92	3-596-519-01	SCREW, AZIMUTH	
93	3-596-598-01	SPACER (T)	
106	*1-563-959-11	HOUSING, CONNECTOR 4P	
107	*1-563-960-11	HOUSING, CONNECTOR 8P	
110	3-596-586-01	SCREW (M1.7X7)	
111	7-627-554-68	SCREW, PRECISION +P 2X5.5 TYPE1	
112	7-621-772-00	SCREW +B 2X3	
113	7-621-772-20	SCREW +B 2X5	
114	7-621-775-00	SCREW +B 2.6X3	
115	7-621-772-10	SCREW +B 2X4	
116	7-627-554-68	SCREW (M2X5)	
120	7-624-101-01	RING, RETAINING E-1.2	
121	7-624-102-04	RING, RETAINING E-1.5	
122	3-590-768-00	RING (A), E-1.6	
123	7-624-118-01	RING, RETAINING E-2.5	
124	7-624-106-04	RING, RETAINING E-3	
130	3-570-615-00	POLY-WASHER (DIA.1.2)	
131	3-701-436-11	WASHER, 1.6 (t=0.25)	
132	3-701-436-21	WASHER, POLYEHTHYLENE (t=0.5)	
134	3-701-437-11	WASHER (t=0.25)	
136	3-701-437-11	POLY-SLIDER ϕ2.1Xϕ5Xt0.25	
137	3-590-770-31	POLY-SLIDER (A)(t=0.25)	
138	3-701-437-21	WASHER (t=0.5)	
140	*3-701-748-00	HOLDER, WIRE	
141	3-493-875-01	HOLDER, WIRE	
901	*1-623-414-11	PC BOARD, HEAD	
902	3-596-596-01	PC BOARD, PHOTO-INTERUPTER	
HP101	1-543-248-01	HEAD	
M401	3-596-592-01	MOTOR ASSY	
PM401	1-454-398-21	SOLENOID, PLUNGER (DIR)	
PM402	1-454-398-31	SOLENOID, PLUNGER (FF)	
PM403	1-454-398-41	SOLENOID, PLUNGER (REW)	
S401	1-570-249-11	SWITCH, LEAF (TAPE-IN)	
S402	1-570-250-11	SWITCH, LEAF (TAPE-OUT)	
S403	1-570-248-11	SWITCH, SLIDE(FWD/REV)	

SECTION 6

ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

Ref.No.	Part No.	Description			
901	*1-623-414-11	PC BOARD, HEAD			
902	3-596-596-01	PC BOARD, PHOTO-INTERUPTER			
903	*A-3216-268-A	MOUNTED PCB, DOLBY			
904	*A-3216-411-A	MOUNTED PCB, NEW ARI (including TIMING board)			
905	*A-3216-598-A	PC BOARD ASSY, MAIN			
906	A-3279-786-A	MOUNTED PCB, INDICATION			
907	*1-559-198-11	CORD (WITH CONNECTOR)			
908	*1-623-447-11	PC BOARD, MD			
909	1-807-833-31	CRYSTAL UNIT, LIQUID (including PL601-605,C699,R699,IC606,LCD601)			
BT601	1-528-225-11	BATTERY, LITHIUM			
C1	1-163-175-00	CERAMIC MELF	56PF	5%	50V
C2	1-163-059-00	CERAMIC MELF	0.01MF	30%	16V
C3	1-163-063-00	CERAMIC MELF	0.022MF		25V
C4	1-126-157-11	ELECT	10MF	20%	16V
C5	1-163-063-00	CERAMIC MELF	0.022MF		25V
C6	1-163-063-00	CERAMIC MELF	0.022MF		25V
C7	1-163-063-00	CERAMIC MELF	0.022MF		25V
C8	1-163-063-00	CERAMIC MELF	0.022MF		25V
C9	1-163-063-00	CERAMIC MELF	0.022MF		25V
C10	1-131-349-00	TANTALUM	2.2MF	10%	35V
C11	1-126-157-11	ELECT	10MF	20%	16V
C12	1-163-181-00	CERAMIC MELF	100PF	10%	50V
C13	1-163-063-00	CERAMIC MELF	0.022MF		25V
C14	1-126-157-11	ELECT	10MF	20%	16V
C15	1-163-059-00	CERAMIC MELF	0.01MF	30%	16V
C16	1-163-063-00	CERAMIC MELF	0.022MF		25V
C17	1-131-377-00	TANTALUM	10MF	10%	10V
C18	1-136-161-00	FILM	0.047MF	5%	50V
C19	1-124-257-00	ELECT	2.2MF	20%	35V
C20	1-124-465-00	ELECT	0.47MF	20%	50V
C21	1-126-154-11	ELECT	47MF	20%	6.3V
C22	1-126-154-11	ELECT	47MF	20%	6.3V
C23	1-124-234-00	ELECT	22MF	20%	16V
C24	1-163-053-00	CERAMIC MELF	0.0033MF	20%	16V
C25	1-131-377-00	TANTALUM	10MF	10%	10V
C26	1-130-482-00	MYLAR	0.0082MF	5%	50V
C27	1-126-094-11	ELECT	4.7MF	20%	16V
C28	1-163-063-00	CERAMIC MELF	0.022MF		25V
C29	1-163-055-00	CERAMIC MELF	0.0047MF	20%	16V
C30	1-163-157-00	FILM	0.022MF	5%	50V
C31	1-163-157-00	FILM	0.022MF	5%	50V
C32	1-124-464-11	ELECT	0.22MF	20%	50V
C33	1-124-255-00	ELECT	1MF	20%	50V
C34	1-124-255-00	ELECT	1MF	20%	50V
C35	1-163-063-00	CERAMIC MELF	0.022MF		25V
C36	1-131-377-00	TANTALUM	10MF	10%	10V
C37	1-163-059-00	CERAMIC MELF	0.01MF	30%	16V
C38	1-163-063-00	CERAMIC MELF	0.022MF		25V
C39	1-163-063-00	CERAMIC MELF	0.022MF		25V
C40	1-163-189-00	CERAMIC MELF	220PF	10%	50V
C41	1-126-094-11	ELECT	4.7MF	20%	16V
C101	1-130-467-00	MYLAR	470PF	5%	50V
C102	1-126-154-11	ELECT	47MF	20%	6.3V
C103	1-130-482-00	MYLAR	0.0082MF	5%	50V
C104	1-130-491-00	MYLAR	0.047MF	5%	50V
C105	1-126-157-11	ELECT	10MF	20%	16V
C106	1-124-465-00	ELECT	0.47MF	20%	50V
C107	1-124-464-11	ELECT	0.22MF	20%	50V
C108	1-130-479-00	MYLAR	0.0047MF	5%	50V
C109	1-136-173-00	FILM	0.47MF	5%	50V
C110	1-136-167-00	FILM	0.15MF	5%	50V
C111	1-136-169-00	FILM	0.22MF	5%	50V
C112	1-130-493-00	MYLAR	0.068MF	5%	50V
C113	1-130-481-00	MYLAR	0.0068MF	5%	50V
C114	1-130-483-00	MYLAR	0.01MF	5%	50V
C115	1-130-491-00	MYLAR	0.047MF	5%	50V
C116	1-130-485-00	MYLAR	0.015MF	5%	50V
C117	1-126-176-11	ELECT	220MF	20%	10V
C151	1-130-467-00	MYLAR	470PF	5%	50V
C152	1-126-154-11	ELECT	47MF	20%	6.3V
C153	1-130-482-00	MYLAR	0.0082MF	5%	50V
C154	1-130-491-00	MYLAR	0.047MF	5%	50V
C155	1-126-157-11	ELECT	10MF	20%	16V
C156	1-124-465-00	ELECT	0.47MF	20%	50V
C157	1-124-464-11	ELECT	0.22MF	20%	50V
C158	1-130-479-00	MYLAR	0.0047MF	5%	50V
C159	1-136-173-00	FILM	0.47MF	5%	50V
C160	1-136-167-00	FILM	0.15MF	5%	50V
C161	1-136-169-00	FILM	0.22MF	5%	50V
C162	1-130-493-00	MYLAR	0.068MF	5%	50V
C163	1-130-481-00	MYLAR	0.0068MF	5%	50V
C164	1-130-483-00	MYLAR	0.01MF	5%	50V
C165	1-130-491-00	MYLAR	0.047MF	5%	50V
C166	1-130-485-00	MYLAR	0.015MF	5%	50V
C167	1-126-176-11	ELECT	220MF	20%	10V
C191	1-163-063-00	CERAMIC MELF	0.022MF		25V
C192	1-163-063-00	CERAMIC MELF	0.022MF		25V
C193	1-124-229-00	ELECT	33MF	20%	10V
C194	1-124-229-00	ELECT	33MF	20%	10V
C201	1-126-157-11	ELECT	10MF	20%	16V
C202	1-130-471-00	MYLAR	0.001MF	5%	50V

Ref.No.	Part No.	Description			
C203	1-126-094-11	ELECT	4.7MF	20%	16V
C204	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C205	1-126-176-11	ELECT	220MF	20%	10V
C206	1-136-165-00	FILM	0.1MF	5%	50V
C207	1-130-476-00	MYLAR	0.0027MF	5%	50V
C208	1-130-475-00	MYLAR	0.0022MF	5%	50V
C209	1-130-491-00	MYLAR	0.047MF	5%	50V
C210	1-124-255-00	ELECT	1MF	20%	50V
C211	1-163-169-00	CERAMIC MELF	33PF	5%	50V
C212	1-126-094-11	ELECT	4.7MF	20%	16V
C213	1-126-094-11	ELECT	4.7MF	20%	16V
C214	1-126-094-11	ELECT	4.7MF	20%	16V
C215	1-126-094-11	ELECT	4.7MF	20%	16V
C216	1-126-157-11	ELECT	10MF	20%	16V
C217	1-126-157-11	ELECT	10MF	20%	16V
C218	1-126-157-11	ELECT	10MF	20%	16V
C219	1-126-162-11	ELECT	3.3MF	20%	25V
C220	1-163-187-00	CERAMIC MELF	180PF	10%	50V
C221	1-126-162-11	ELECT	3.3MF	20%	25V
C222	1-163-187-00	CERAMIC MELF	180PF	10%	50V
C266	1-126-157-11	ELECT	10MF	20%	16V
C267	1-126-157-11	ELECT	10MF	20%	16V
C268	1-126-157-11	ELECT	10MF	20%	16V
C269	1-126-162-11	ELECT	3.3MF	20%	25V
C270	1-163-187-00	CERAMIC MELF	180PF	10%	50V
C271	1-126-162-11	ELECT	3.3MF	20%	25V
C272	1-163-187-00	CERAMIC MELF	180PF	10%	50V
C291	1-124-229-00	ELECT	33MF	20%	10V
C293	1-124-229-00	ELECT	33MF	20%	10V
C294	1-124-473-11	ELECT	1000MF	20%	10V
C295	1-124-229-00	ELECT	33MF	20%	10V
C296	1-124-229-00	ELECT	33MF	20%	10V
C301	1-126-157-11	ELECT	10MF	20%	16V
C302	1-130-471-00	MYLAR	0.001MF	5%	50V
C303	1-126-094-11	ELECT	4.7MF	20%	16V
C304	1-163-205-00	CERAMIC MELF	0.001MF	10%	50V
C305	1-126-176-11	ELECT	220MF	20%	10V
C306	1-136-165-00	FILM	0.1MF	5%	50V
C307	1-130-476-00	MYLAR	0.0027MF	5%	50V
C308	1-130-475-00	MYLAR	0.0022MF	5%	50V
C309	1-130-491-00	MYLAR	0.047MF	5%	50V
C310	1-124-255-00	ELECT	1MF	20%	50V
C311	1-163-169-00	CERAMIC MELF	33PF	5%	50V
C312	1-126-094-11	ELECT	4.7MF	20%	16V
C313	1-126-094-11	ELECT	4.7MF	20%	16V
C314	1-126-094-11	ELECT	4.7MF	20%	16V
C315	1-126-094-11	ELECT	4.7MF	20%	16V
C316	1-126-157-11	ELECT	10MF	20%	16V
C317	1-126-157-11	ELECT	10MF	20%	16V
C318	1-126-157-11	ELECT	10MF	20%	16V
C319	1-126-162-11	ELECT	3.3MF	20%	25V
C320	1-163-187-00	CERAMIC MELF	180PF	10%	50V
C321	1-126-162-11	ELECT	3.3MF	20%	25V
C322	1-163-187-00	CERAMIC MELF	180PF	10%	50V
C366	1-126-157-11	ELECT	10MF	20%	16V
C367	1-126-157-11	ELECT	10MF	20%	16V
C368	1-126-157-11	ELECT	10MF	20%	16V
C369	1-126-162-11	ELECT	3.3MF	20%	25V
C370	1-163-187-00	CERAMIC MELF	180PF	10%	50V
C371	1-126-162-11	ELECT	3.3MF	20%	25V
C372	1-163-187-00	CERAMIC MELF	180PF	10%	50V
C401	1-124-119-00	ELECT	330MF	20%	16V
C402	1-124-589-11	ELECT	47MF	20%	10V
C403	1-163-063-00	CERAMIC MELF	0.022MF		25V
C601	1-163-157-00	FILM	0.022MF	5%	50V
C602	1-126-162-11	ELECT	3.3MF	20%	25V
C603	1-126-162-11	ELECT	3.3MF	20%	25V
C604	1-163-059-00	CERAMIC MELF	0.01MF	30%	16V
C605	1-124-257-00	ELECT	2.2MF	20%	35V
C606	1-136-165-00	FILM	0.1MF	5%	50V
C607	1-163-161-00	CERAMIC MELF	15PF	5%	50V
C608	1-163-161-00	CERAMIC MELF	15PF	5%	50V
C609	1-126-157-11	ELECT	10MF	20%	16V
C610	1-163-063-00	CERAMIC MELF	0.022MF		25V
C611	1-126-157-11	ELECT	10MF	20%	16V
C612	1-124-229-00	ELECT	33MF	20%	10V
C613	1-131-377-00	TANTALUM	10MF	10%	10V
C614	1-163-169-00	CERAMIC MELF	33PF	5%	50V
C615	1-163-169-00	CERAMIC MELF	33PF	5%	50V
C616	1-131-377-00	TANTALUM	10MF	10%	10V
C620	1-163-169-00	CERAMIC MELF	33PF	5%	50V
C621	1-163-169-00	CERAMIC MELF	33PF	5%	50V
C623	1-163-157-00	FILM	0.022MF	5%	50V
C624	1-124-255-00	ELECT	1MF	20%	50V
C625	1-124-257-00	ELECT	2.2MF	20%	35V
C626	1-126-157-11	ELECT	10MF	20%	16V
C627	1-126-157-11	ELECT	10MF	20%	16V
C628	1-124-465-00	ELECT	0.47MF	20%	50V
C629	1-124-465-00	ELECT	0.47MF	20%	50V
C630	1-124-229-00	ELECT	33MF	20%	10V
C632	1-124-229-00	ELECT	33MF	20%	10V
C633	1-124-255-00	ELECT	1MF	20%	50V
C634	1-124-229-00	ELECT	33MF	20%	10V
C635	1-124-229-00	ELECT	33MF	20%	10V
C636	1-124-229-00	ELECT	33MF	20%	10V
C637	1-124-242-00	ELECT	33MF	20%	16V
C638	1-124-255-00	ELECT	1MF	20%	50V
C639	1-124-119-00	ELECT	330MF	20%	16V
C640	1-124-255-00	ELECT	1MF	20%	50V
C641	1-131-379-00	TANTALUM	22MF	20%	6.3V
C642	1-124-255-00	ELECT	1MF	20%	50V
C643	1-124-477-11	ELECT	47MF	20%	16V
C644	1-124-257-00	ELECT	2.2MF	20%	35V
C645	1-124-257-00	ELECT	2.2MF	20%	35V
C646	1-163-063-00	CERAMIC MELF	0.022MF		25V
C648	1-124-255-00	ELECT	1MF	20%	50V
C649	1-163-063-00	CERAMIC MELF	0.022MF		25V
C650	1-163-063-00	CERAMIC MELF	0.022MF		25V
C701	1-163-175-00	CERAMIC MELF	56PF	5%	50V
C702	1-130-477-00	FILM	0.0033MF	5%	50V
C703	1-126-094-11	ELECT	4.7MF	20%	25V
C704	1-136-163-00	FILM	0.068MF	5%	50V
C705	1-136-163-00	FILM	0.068MF	5%	50V
C706	1-124-463-00	ELECT	0.1MF	20%	50V

Ref.No.	Part No.	Description			
R13	1-249-441-11	CARBON MELF	100K	5%	1/5W
R14	1-249-393-11	CARBON MELF	10	5%	1/5W
R15	1-249-426-11	CARBON MELF	5.6K	5%	1/5W
R16	1-249-437-11	CARBON MELF	47K	5%	1/5W
R17	1-249-438-11	CARBON MELF	56K	5%	1/5W
R18	1-249-393-11	CARBON MELF	10	5%	1/5W
R19	1-249-417-11	CARBON MELF	1K	5%	1/5W
R20	1-249-417-11	CARBON MELF	1K	5%	1/5W
R21	1-249-417-11	CARBON MELF	1K	5%	1/5W
R22	1-215-452-00	CARBON MELF	20K	5%	1/5W
R23	1-249-422-11	CARBON MELF	2.7K	5%	1/5W
R24	1-249-426-11	CARBON MELF	5.6K	5%	1/5W
R25	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R27	1-249-423-11	CARBON MELF	3.3K	5%	1/5W
R28	1-249-423-11	CARBON MELF	3.3K	5%	1/5W
R29	1-249-430-11	CARBON MELF	12K	5%	1/5W
R30	1-249-430-11	CARBON MELF	12K	5%	1/5W
R31	1-249-438-11	CARBON MELF	56K	5%	1/5W
R32	1-249-438-11	CARBON MELF	56K	5%	1/5W
R33	1-249-433-11	CARBON MELF	22K	5%	1/5W
R34	1-249-433-11	CARBON MELF	22K	5%	1/5W
R35	1-249-433-11	CARBON MELF	22K	5%	1/5W
R36	1-249-417-11	CARBON MELF	1K	5%	1/5W
R37	1-249-434-11	CARBON MELF	27K	5%	1/5W
R38	1-249-433-11	CARBON MELF	22K	5%	1/5W
R39	1-249-411-11	CARBON MELF	330	5%	1/5W
R40	1-249-433-11	CARBON MELF	22K	5%	1/5W
R41	1-249-429-11	CARBON MELF	10K	5%	1/5W
R42	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R101	1-249-412-11	CARBON MELF	390	5%	1/5W
R102	1-249-431-11	CARBON MELF	15K	5%	1/5W
R103	1-215-483-00	CARBON MELF	390K	5%	1/5W
R104	1-215-424-00	CARBON MELF	1.3K	5%	1/5W
R105	1-249-419-11	CARBON MELF	1.5K	5%	1/5W
R106	1-215-489-00	CARBON MELF	680K	5%	1/5W
R107	1-249-429-11	CARBON MELF	10K	5%	1/5W
R108	1-249-035-00	CARBON MELF	680	5%	1/5W
R109	1-215-412-00	CARBON MELF	430	5%	1/5W
R110	1-215-433-00	METAL	3.3K	1%	1/6W
R111	1-249-427-11	CARBON MELF	6.8K	5%	1/5W
R112	1-215-433-00	METAL	3.3K	1%	1/6W
R151	1-249-412-11	CARBON MELF	390	5%	1/5W
R152	1-249-431-11	CARBON MELF	15K	5%	1/5W
R153	1-215-483-00	CARBON MELF	390K	5%	1/5W
R154	1-215-424-00	CARBON MELF	1.3K	5%	1/5W
R155	1-249-419-11	CARBON MELF	1.5K	5%	1/5W
R156	1-215-489-00	CARBON MELF	680K	5%	1/5W
R157	1-249-429-11	CARBON MELF	10K	5%	1/5W
R158	1-249-035-00	CARBON MELF	680	5%	1/5W
R159	1-215-412-00	CARBON MELF	430	5%	1/5W
R160	1-215-433-00	METAL	3.3K	1%	1/6W
R161	1-249-427-11	CARBON MELF	6.8K	5%	1/5W
R162	1-215-433-00	METAL	3.3K	1%	1/6W
R191	1-249-429-11	CARBON MELF	10K	5%	1/5W
R193	1-215-469-00	METAL	100K	1%	1/6W
R194	1-249-441-11	CARBON MELF	100K	5%	1/5W
R195	1-249-441-11	CARBON MELF	100K	5%	1/5W

Ref.No.	Part No.	Description			
R196	1-249-441-11	CARBON MELF	100K	5%	1/5W
R201	1-215-473-00	CARBON MELF	150K	5%	1/5W
R202	1-249-422-11	CARBON MELF	2.7K	5%	1/5W
R203	1-249-429-11	CARBON MELF	10K	5%	1/5W
R204	1-249-435-11	CARBON MELF	33K	5%	1/5W
R205	1-249-430-11	CARBON MELF	12K	5%	1/5W
R206	1-249-417-11	CARBON MELF	1K	5%	1/5W
R207	1-249-438-11	CARBON MELF	56K	5%	1/5W
R208	1-215-477-00	CARBON MELF	220K	5%	1/5W
R209	1-215-477-00	CARBON MELF	220K	5%	1/5W
R210	1-249-441-11	CARBON MELF	100K	5%	1/5W
R211	1-249-429-11	CARBON MELF	10K	5%	1/5W
R212	1-249-433-11	CARBON MELF	22K	5%	1/5W
R213	1-249-429-11	CARBON MELF	10K	5%	1/5W
R214	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R215	1-249-429-11	CARBON MELF	10K	5%	1/5W
R216	1-249-428-11	CARBON MELF	8.2K	5%	1/5W
R217	1-249-420-11	CARBON MELF	1.8K	5%	1/5W
R218	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R219	1-249-432-11	CARBON MELF	18K	5%	1/5W
R220	1-249-433-11	CARBON MELF	22K	5%	1/5W
R221	1-249-429-11	CARBON MELF	10K	5%	1/5W
R222	1-215-471-00	CARBON MELF	120K	5%	1/5W
R260	1-249-441-11	CARBON MELF	100K	5%	1/5W
R261	1-249-429-11	CARBON MELF	10K	5%	1/5W
R262	1-249-433-11	CARBON MELF	22K	5%	1/5W
R263	1-249-429-11	CARBON MELF	10K	5%	1/5W
R264	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R265	1-249-429-11	CARBON MELF	10K	5%	1/5W
R266	1-249-432-11	CARBON MELF	18K	5%	1/5W
R267	1-249-420-11	CARBON MELF	1.8K	5%	1/5W
R268	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R269	1-249-432-11	CARBON MELF	18K	5%	1/5W
R270	1-249-433-11	CARBON MELF	22K	5%	1/5W
R271	1-249-429-11	CARBON MELF	10K	5%	1/5W
R272	1-215-471-00	CARBON MELF	120K	5%	1/5W
R291	1-249-441-11	CARBON MELF	100K	5%	1/5W
R292	1-249-441-11	CARBON MELF	100K	5%	1/5W
R293	1-249-405-11	CARBON MELF	100	5%	1/5W
R294	1-249-405-11	CARBON MELF	100	5%	1/5W
R301	1-215-473-00	CARBON MELF	150K	5%	1/5W
R302	1-249-422-11	CARBON MELF	2.7K	5%	1/5W
R303	1-249-429-11	CARBON MELF	10K	5%	1/5W
R304	1-249-435-11	CARBON MELF	33K	5%	1/5W
R305	1-249-430-11	CARBON MELF	12K	5%	1/5W
R306	1-249-417-11	CARBON MELF	1K	5%	1/5W
R307	1-249-438-11	CARBON MELF	56K	5%	1/5W
R308	1-215-477-00	CARBON MELF	220K	5%	1/5W
R309	1-215-477-00	CARBON MELF	220K	5%	1/5W
R310	1-249-441-11	CARBON MELF	100K	5%	1/5W
R311	1-249-429-11	CARBON MELF	10K	5%	1/5W
R312	1-249-433-11	CARBON MELF	22K	5%	1/5W
R313	1-249-429-11	CARBON MELF	10K	5%	1/5W
R314	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R315	1-249-429-11	CARBON MELF	10K	5%	1/5W
R316	1-249-428-11	CARBON MELF	8.2K	5%	1/5W
R317	1-249-420-11	CARBON MELF	1.8K	5%	1/5W

Ref.No.	Part No.	Description			
R318	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R319	1-249-432-11	CARBON MELF	18K	5%	1/5W
R320	1-249-433-11	CARBON MELF	22K	5%	1/5W
R321	1-249-429-11	CARBON MELF	10K	5%	1/5W
R322	1-215-471-00	CARBON MELF	120K	5%	1/5W
R360	1-249-441-11	CARBON MELF	100K	5%	1/5W
R361	1-249-429-11	CARBON MELF	10K	5%	1/5W
R362	1-249-433-11	CARBON MELF	22K	5%	1/5W
R363	1-249-429-11	CARBON MELF	10K	5%	1/5W
R364	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R365	1-249-429-11	CARBON MELF	10K	5%	1/5W
R366	1-249-432-11	CARBON MELF	18K	5%	1/5W
R367	1-249-420-11	CARBON MELF	1.8K	5%	1/5W
R368	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R369	1-249-432-11	CARBON MELF	18K	5%	1/5W
R370	1-249-433-11	CARBON MELF	22K	5%	1/5W
R371	1-249-429-11	CARBON MELF	10K	5%	1/5W
R372	1-215-471-00	CARBON MELF	120K	5%	1/5W
R401	1-249-038-00	CARBON MELF	1.2K	5%	1/5W
R402	1-249-426-11	CARBON MELF	5.6K	5%	1/5W
R403	1-249-435-11	CARBON MELF	33K	5%	1/5W
R404	1-249-407-11	CARBON MELF	150	5%	1/5W
R405	1-249-435-11	CARBON MELF	33K	5%	1/5W
R408	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R409	1-249-437-11	CARBON MELF	47K	5%	1/5W
R410	1-249-437-11	CARBON MELF	47K	5%	1/5W
R411	1-249-437-11	CARBON MELF	47K	5%	1/5W
R412	1-249-437-11	CARBON MELF	47K	5%	1/5W
R413	1-249-400-11	CARBON MELF	39	5%	1/5W
R501	1-249-412-11	CARBON MELF	390	5%	1/5W
R502	1-249-412-11	CARBON MELF	390	5%	1/5W
R503	1-249-412-11	CARBON MELF	390	5%	1/5W
R504	1-249-412-11	CARBON MELF	390	5%	1/5W
R505	1-249-412-11	CARBON MELF	390	5%	1/5W
R506	1-249-412-11	CARBON MELF	390	5%	1/5W
R507	1-249-412-11	CARBON MELF	390	5%	1/5W
R508	1-249-412-11	CARBON MELF	390	5%	1/5W
R509	1-249-412-11	CARBON MELF	390	5%	1/5W
R510	1-249-412-11	CARBON MELF	390	5%	1/5W
R511	1-249-412-11	CARBON MELF	390	5%	1/5W
R512	1-249-409-11	CARBON MELF	220	5%	1/5W
R601	1-249-423-11	CARBON MELF	3.3K	5%	1/5W
R602	1-249-424-11	CARBON MELF	3.9K	5%	1/5W
R603	1-249-417-11	CARBON MELF	1K	5%	1/5W
R604	1-249-417-11	CARBON MELF	1K	5%	1/5W
R605	1-249-429-11	CARBON MELF	10K	5%	1/5W
R606	1-249-423-11	CARBON MELF	3.3K	5%	1/5W
R607	1-249-419-11	CARBON MELF	1.5K	5%	1/5W
R608	1-215-493-00	CARBON MELF	1M	5%	1/5W
R609	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R610	1-249-429-11	CARBON MELF	10K	5%	1/5W
R611	1-249-429-11	CARBON MELF	10K	5%	1/5W
R612	1-249-417-11	CARBON MELF	1K	5%	1/5W
R613	1-249-417-11	CARBON MELF	1K	5%	1/5W
R614	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R615	1-249-421-11	CARBON MELF	2.2K	5%	1/5W
R616	1-249-421-11	CARBON MELF	2.2K	5%	1/5W

Ref.No.	Part No.	Description				
R617	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R618	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R619	1-249-435-11	CARBON MELF	33K	5%	1/5W	
R620	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R621	1-249-435-11	CARBON MELF	33K	5%	1/5W	
R622	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R623	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R624	1-249-435-11	CARBON MELF	33K	5%	1/5W	
R625	1-249-435-11	CARBON MELF	33K	5%	1/5W	
R626	1-249-435-11	CARBON MELF	33K	5%	1/5W	
R627	1-249-435-11	CARBON MELF	33K	5%	1/5W	
R628	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R629	1-249-441-11	CARBON MELF	100K	5%	1/5W	
R630	1-249-441-11	CARBON MELF	100K	5%	1/5W	
R631	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R632	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R639	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R640	1-249-441-11	CARBON MELF	100K	5%	1/5W	
R641	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R642	1-249-435-11	CARBON MELF	33K	5%	1/5W	
R643	1-249-436-11	CARBON MELF	39K	5%	1/5W	
R644	1-249-441-11	CARBON MELF	100K	5%	1/5W	
R645	1-215-493-00	CARBON MELF	1M	5%	1/5W	
R646	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R647	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R648	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R649	1-249-425-11	CARBON MELF	4.7K	5%	1/5W	
R650	1-249-423-11	CARBON MELF	3.3K	5%	1/5W	
R651	1-249-441-11	CARBON MELF	100K	5%	1/5W	
R652	1-215-477-00	CARBON MELF	220K	5%	1/5W	
R653	1-249-423-11	CARBON MELF	3.3K	5%	1/5W	
R654	1-249-426-11	CARBON MELF	5.6K	5%	1/5W	
R655	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R656	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R657	1-249-435-11	CARBON MELF	33K	5%	1/5W	
R658	1-249-433-11	CARBON MELF	22K	5%	1/5W	
R659	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R660	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R661	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R662	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R663	1-249-425-11	CARBON MELF	4.7K	5%	1/5W	
R664	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R665	1-249-429-11	CARBON MELF	10K	5%	1/5W	
R666	1-215-477-00	CARBON MELF	220K	5%	1/5W	
R667	1-249-438-11	CARBON MELF	56K	5%	1/5W	
R668	1-249-433-11	CARBON MELF	22K	5%	1/5W	
R669	1-249-432-11	CARBON MELF	18K	5%	1/5W	
R670	1-249-441-11	CARBON MELF	100K	5%	1/5W	
R673	1-216-358-11	METAL OXIDE	5.6	5%	1W	F
R674	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R675	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R676	1-249-417-11	CARBON MELF	1K	5%	1/5W	
R677	1-249-405-11	CARBON MELF	100	5%	1/5W	
R678	1-249-437-11	CARBON MELF	47K	5%	1/5W	
R679	1-249-441-11	CARBON MELF	100K	5%	1/5W	
R680	1-249-413-11	CARBON MELF	470	5%	1/5W	
R681	1-249-429-11	CARBON MELF	10K	5%	1/5W	

Ref.No.	Part No.	Description			
C707	1-124-463-00	ELECT	0.1MF	20%	50V
C708	1-136-161-00	FILM	0.047MF	5%	50V
C709	1-136-161-00	FILM	0.047MF	5%	50V
C710	1-124-463-00	ELECT	0.1MF	20%	50V
C711	1-136-163-00	FILM	0.068MF	5%	50V
C712	1-136-163-00	FILM	0.068MF	5%	50V
C713	1-163-063-00	CERAMIC MELF	0.022MF		25V
C714	1-124-229-00	ELECT	33MF	20%	10V
C715	1-163-063-00	CERAMIC MELF	0.022MF		25V
C716	1-163-063-00	CERAMIC MELF	0.022MF		25V
C717	1-163-063-00	CERAMIC MELF	0.022MF		25V
C751	1-124-229-00	ELECT	33MF	20%	10V
CF1	1-567-415-11	FILTER, CERAMIC			
CF2	1-567-415-11	FILTER, CERAMIC			
CNJ1	*1-563-961-11	SOCKET, CONNECTOR			
CNP101	*1-564-002-00	PIN, CONNECTOR 3P			
CNP102	*1-564-002-00	PIN, CONNECTOR 3P			
CNP103	*1-564-007-00	PIN, CONNECTOR 8P			
CNP104	*1-564-002-71	PIN, CONNECTOR 3P			
CNP202	*1-564-005-00	PIN, CONNECTOR 6P			
CNP210	*1-564-014-51	PIN, CONNECTOR 4P			
CNP260	*1-564-002-61	PIN, CONNECTOR 3P			
CNP401	*1-566-460-11	PIN, CONNECTOR 4P			
CNP402	*1-566-461-11	PIN, CONNECTOR 8P			
CNP403	*1-566-008-11	PIN, CONNECTOR (PC BOARD) 11P			
CNP601	*1-560-894-00	PIN, CONNECTOR 6P			
CNP602	*1-564-012-00	PIN, CONNECTOR 2P			
CNP603	*1-564-017-00	PIN, CONNECTOR 7P			
CNP604	*1-566-012-11	PIN, CONNECTOR (PC BOARD) 15P			
CNP605	*1-564-017-00	PIN, CONNECTOR 7P			
CNP607	*1-564-012-61	PIN, CONNECTOR 2P			
CNP701	*1-564-005-00	PIN, CONNECTOR 6P			
CNP751	*1-564-012-00	PIN, CONNECTOR 2P			
CP1	1-519-421-11	GAP, DISCHARGE			
CP2	1-519-421-11	GAP, DISCHARGE			
D1	8-719-911-19	DIODE 1SS119			
D2	8-719-911-19	DIODE 1SS119			
D3	8-719-911-19	DIODE 1SS119			
D4	8-719-911-19	DIODE 1SS119			
D201	8-719-109-75	DIODE RD4.3ES-B2			
D301	8-719-109-75	DIODE RD4.3ES-B2			
D401	8-719-911-19	DIODE 1SS119			
D402	8-719-911-19	DIODE 1SS119			
D403	8-719-911-19	DIODE 1SS119			
D404	8-719-911-19	DIODE 1SS119			
D405	8-719-200-02	DIODE 10E-2			
D406	8-719-200-02	DIODE 10E-2			
D407	8-719-109-92	DIODE RD6.2ES-B1			
D501	8-719-404-22	DIODE LN1451C			
D502	8-719-404-22	DIODE LN1451C			
D503	8-719-404-22	DIODE LN1451C			
D504	8-719-404-22	DIODE LN1451C			
D505	8-719-404-22	DIODE LN1451C			
D506	8-719-404-22	DIODE LN1451C			
D507	8-719-404-22	DIODE LN1451C			
D508	8-719-404-22	DIODE LN1451C			
D509	8-719-404-22	DIODE LN1451C			
D510	8-719-404-22	DIODE LN1451C			
D511	8-719-404-22	DIODE LN1451C			
D512	8-719-404-22	DIODE LN1451C			
D513	8-719-404-22	DIODE LN1451C			
D514	8-719-404-22	DIODE LN1451C			
D515	8-719-404-22	DIODE LN1451C			
D516	8-719-404-22	DIODE LN1451C			
D517	8-719-404-22	DIODE LN1451C			
D518	8-719-404-22	DIODE LN1451C			
D519	8-719-404-22	DIODE LN1451C			
D520	8-719-404-22	DIODE LN1451C			
D521	8-719-404-22	DIODE LN1451C			
D601	8-719-109-89	DIODE RD5.6ES-B2			
D602	8-719-110-13	DIODE RD9.1ES-B2			
D603	8-719-101-61	DIODE RD6.2E-L2			
D604	8-719-109-89	DIODE RD5.6ES-B2			
D605	8-719-110-13	DIODE RD9.1ES-B2			
D606	8-719-101-61	DIODE RD6.2E-L2			
D607	8-719-911-19	DIODE 1SS119			
D608	8-719-911-19	DIODE 1SS119			
D609	8-719-911-19	DIODE 1SS119			
D610	8-719-911-19	DIODE 1SS119			
D611	8-719-911-19	DIODE 1SS119			
D612	8-719-200-02	DIODE 10E-2			
D613	8-719-200-02	DIODE 10E-2			
D614	8-719-911-19	DIODE 1SS119			
D615	8-719-109-72	DIODE RD3.9ES-B2			
D616	8-719-110-13	DIODE RD9.1ES-B2			
D617	8-719-110-13	DIODE RD9.1ES-B2			
D618	8-719-981-01	DIODE ERA81-004			
D619	8-719-109-89	DIODE RD5.6ES-B2			
D620	8-719-109-89	DIODE RD5.6ES-B2			
D621	8-719-109-89	DIODE RD5.6ES-B2			
D622	8-719-109-89	DIODE RD5.6ES-B2			
D623	8-719-109-89	DIODE RD5.6ES-B2			
D624	8-719-109-89	DIODE RD5.6ES-B2			
D625	8-719-911-19	DIODE 1SS119			
D626	8-719-911-19	DIODE 1SS119			
D627	8-719-911-19	DIODE 1SS119			
D628	8-719-200-02	DIODE 10E-2			
D751	8-719-901-33	DIODE 1SS133			
FE1	1-463-858-11	FRONT END (FM)			
FE2	1-463-852-11	TUNER UNIT, AM			
HP101	1-543-248-01	HEAD			
IC1	8-759-630-66	IC M51690L-700			
IC2	1-807-501-11	IC STK3400 (50US)			
IC101	8-759-604-56	IC M5246FP			
IC102	8-752-030-61	IC CXA1097Q			
IC201	8-759-604-56	IC M5228FP			
IC202	8-759-106-22	IC UPD4052BG			
IC203	8-759-208-65	IC TC9188F			
IC204	8-759-604-56	IC M5228FP			
IC205	8-759-604-56	IC M5228FP			

Ref.No.	Part No.	Description			
IC206	8-759-100-96	IC UPC4558G2			
IC401	8-759-645-16	IC M54516P			
IC601	8-759-142-52	IC UPD75104G-545-1B			
IC602	8-759-141-03	IC UPD75108G-593-1B			
IC603	8-759-905-47	IC BA338			
IC604	8-759-803-37	IC LM7001			
IC605	8-759-106-20	IC UPD4050BG			
IC701	8-759-971-69	IC TDA1579			
IC702	8-759-604-56	IC M5228FP			
JR701	1-249-366-11	CARBON MELF	0	5%	1/5W
JR702	1-249-366-11	CARBON MELF	0	5%	1/5W
JR703	1-249-366-11	CARBON MELF	0	5%	1/5W
JR704	1-249-366-11	CARBON MELF	0	5%	1/5W
JR705	1-249-366-11	CARBON MELF	0	5%	1/5W
JR706	1-249-366-11	CARBON MELF	0	5%	1/5W
JR707	1-249-366-11	CARBON MELF	0	5%	1/5W
JR708	1-249-366-11	CARBON MELF	0	5%	1/5W
JR709	1-249-366-11	CARBON MELF	0	5%	1/5W
JR710	1-249-366-11	CARBON MELF	0	5%	1/5W
JR711	1-249-366-11	CARBON MELF	0	5%	1/5W
JR712	1-249-366-11	CARBON MELF	0	5%	1/5W
JR713	1-249-366-11	CARBON MELF	0	5%	1/5W
JW1	1-249-366-11	CARBON MELF	0	5%	1/5W
JW2	1-249-366-11	CARBON MELF	0	5%	1/5W
JW3	1-249-366-11	CARBON MELF	0	5%	1/5W
JW4	1-249-366-11	CARBON MELF	0	5%	1/5W
JW5	1-249-366-11	CARBON MELF	0	5%	1/5W
JW6	1-249-366-11	CARBON MELF	0	5%	1/5W
JW7	1-249-366-11	CARBON MELF	0	5%	1/5W
JW8	1-249-366-11	CARBON MELF	0	5%	1/5W
JW201	1-249-366-11	CARBON MELF	0	5%	1/5W
JW202	1-249-366-11	CARBON MELF	0	5%	1/5W
JW203	1-249-366-11	CARBON MELF	0	5%	1/5W
JW602	1-249-366-11	CARBON MELF	0	5%	1/5W
JW604	1-249-366-11	CARBON MELF	0	5%	1/5W
JW652	1-249-366-11	CARBON MELF	0	5%	1/5W
L1	1-410-324-11	INDUCTOR	4.7UH		
L2	1-410-316-11	INDUCTOR	1UH		
L3	1-410-312-11	INDUCTOR	0.22UH		
L4	1-410-328-11	INDUCTOR	10UH		
L5	1-410-330-11	INDUCTOR	22UH		
L6	1-410-330-11	INDUCTOR	22UH		
L7	1-406-233-11	COIL (OSC)			
L101	1-235-186-00	ENCAPSULATED COMPONENT			
L151	1-235-186-00	ENCAPSULATED COMPONENT			
L401	1-408-111-00	INDUCTOR	3.3UH		
L601	1-410-330-11	INDUCTOR	22UH		
L602	1-410-330-11	INDUCTOR	22UH		
L603	1-410-330-11	INDUCTOR	22UH		
L701	1-424-036-11	COIL (FILTER)			
M401	3-596-592-01	MOTOR ASSY			
PM401	1-454-398-21	SOLENOID, PLUNGER (DIR)			
PM402	1-454-398-31	SOLENOID, PLUNGER (FF)			
PM403	1-454-398-41	SOLENOID, PLUNGER (REW)			
Q1	8-729-600-27	TRANSISTOR 2SC634SP			
Q2	8-729-600-27	TRANSISTOR 2SC634SP			
Q3	8-729-204-83	TRANSISTOR 2SA1048-GR			
Q4	8-729-600-27	TRANSISTOR 2SC634SP			
Q5	8-729-900-89	TRANSISTOR DTC144ES			
Q6	8-729-900-89	TRANSISTOR DTC144ES			
Q7	8-729-600-27	TRANSISTOR 2SC634SP			
Q8	8-729-600-27	TRANSISTOR 2SC634SP			
Q9	8-729-600-27	TRANSISTOR 2SC634SP			
Q101	8-729-900-89	TRANSISTOR DTC144ES			
Q151	8-729-900-89	TRANSISTOR DTC144ES			
Q191	8-729-900-89	TRANSISTOR DTC144ES			
Q192	8-729-900-89	TRANSISTOR DTC144ES			
Q201	8-729-811-24	TRANSISTOR 2SD1012			
Q202	8-729-811-24	TRANSISTOR 2SD1012			
Q203	8-729-811-24	TRANSISTOR 2SD1012			
Q301	8-729-811-24	TRANSISTOR 2SD1012			
Q302	8-729-811-24	TRANSISTOR 2SD1012			
Q303	8-729-811-24	TRANSISTOR 2SD1012			
Q401	8-729-988-12	TRANSISTOR 2SA881			
Q402	8-729-905-52	TRANSISTOR 2SD1055			
Q601	8-729-600-27	TRANSISTOR 2SC634SP			
Q602	8-729-600-27	TRANSISTOR 2SC634SP			
Q603	8-729-600-27	TRANSISTOR 2SC634SP			
Q604	8-729-600-27	TRANSISTOR 2SC634SP			
Q605	8-729-905-52	TRANSISTOR 2SD1055			
Q606	8-729-900-80	TRANSISTOR DTC114ES			
Q607	8-729-204-83	TRANSISTOR 2SA1048-GR			
Q608	8-729-807-11	TRANSISTOR 2SD1802			
Q609	8-729-982-22	TRANSISTOR 2SB822			
Q610	8-729-982-22	TRANSISTOR 2SB822			
Q611	8-729-600-27	TRANSISTOR 2SC634SP			
Q612	8-729-102-03	TRANSISTOR 2SD1020			
Q613	8-729-204-83	TRANSISTOR 2SA1048-GR			
Q614	8-729-905-52	TRANSISTOR 2SD1055			
Q615	8-729-982-22	TRANSISTOR 2SB822			
Q616	8-729-900-74	TRANSISTOR DTC143TS			
Q619	8-729-905-52	TRANSISTOR 2SD1055			
Q620	8-729-900-89	TRANSISTOR DTC144ES			
Q621	8-729-600-27	TRANSISTOR 2SC634SP			
Q625	8-729-900-80	TRANSISTOR DTC114ES			
Q626	8-729-600-27	TRANSISTOR 2SC634SP			
Q627	8-729-600-27	TRANSISTOR 2SC634SP			
Q628	8-729-900-89	TRANSISTOR DTC144ES			
Q629	8-729-900-89	TRANSISTOR DTC144ES			
Q630	8-729-600-27	TRANSISTOR 2SC634SP			
Q751	8-729-600-27	TRANSISTOR 2SC634SP			
Q752	8-729-600-27	TRANSISTOR 2SC634SP			
R1	1-249-429-11	CARBON MELF	10K	5%	1/5W
R2	1-249-387-11	CARBON MELF	3.3	5%	1/5W
R3	1-249-429-11	CARBON MELF	10K	5%	1/5W
R4	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R5	1-249-441-11	CARBON MELF	100K	5%	1/5W
R6	1-249-411-11	CARBON MELF	330	5%	1/5W
R7	1-249-425-11	CARBON MELF	4.7K	5%	1/5W
R8	1-249-430-11	CARBON MELF	12K	5%	1/5W
R9	1-215-452-00	CARBON MELF	20K	5%	1/5W
R10	1-249-427-11	CARBON MELF	6.8K	5%	1/5W
R11	1-215-414-00	METAL	510	1%	1/6W
R12	1-249-429-11	CARBON MELF	10K	5%	1/5W

Ref.No.	Part No.	Description
R682	1-249-417-11	CARBON MELF 1K 5% 1/5W
R683	1-249-417-11	CARBON MELF 1K 5% 1/5W
R684	1-249-411-11	CARBON MELF 330 5% 1/5W
R685	1-249-409-11	CARBON MELF 220 5% 1/5W
R701	1-249-437-11	CARBON MELF 47K 5% 1/5W
R702	1-249-439-11	CARBON MELF 68K 5% 1/5W
R703	1-249-425-11	CARBON MELF 4.7K 5% 1/5W
R704	1-249-441-11	CARBON MELF 100K 5% 1/5W
R705	1-249-413-11	CARBON MELF 470 5% 1/5W
R706	1-215-489-00	CARBON MELF 680K 5% 1/5W
R707	1-215-477-00	CARBON MELF 220K 5% 1/5W
R708	1-215-488-00	CARBON MELF 620K 5% 1/5W
R709	1-249-422-11	CARBON MELF 2.7K 5% 1/5W
R710	1-249-426-11	CARBON MELF 5.6K 5% 1/5W
R711	1-249-435-11	CARBON MELF 33K 5% 1/5W
R712	1-249-430-11	CARBON MELF 12K 5% 1/5W
R713	1-215-478-00	CARBON MELF 240K 5% 1/5W
R714	1-249-440-11	CARBON MELF 82K 5% 1/5W
R715	1-249-437-11	CARBON MELF 47K 5% 1/5W
R716	1-249-437-11	CARBON MELF 47K 5% 1/5W
R717	1-249-425-11	CARBON MELF 4.7K 5% 1/5W
R718	1-249-437-11	CARBON MELF 47K 5% 1/5W
R719	1-249-429-11	CARBON MELF 10K 5% 1/5W
R720	1-249-430-11	CARBON MELF 12K 5% 1/5W
R721	1-249-437-11	CARBON MELF 47K 5% 1/5W
R722	1-249-413-11	CARBON MELF 470 5% 1/5W
R723	1-249-437-11	CARBON MELF 47K 5% 1/5W
R724	1-249-429-11	CARBON MELF 10K 5% 1/5W
R725	1-249-430-11	CARBON MELF 12K 5% 1/5W
R751	1-249-433-11	CARBON MELF 22K 5% 1/5W
R752	1-249-433-11	CARBON MELF 22K 5% 1/5W
RV1	1-237-605-11	RES, ADJ, METAL GRAZE 10K (FM SD CENTER-FREQUENCY)
RV2	1-237-133-11	RES, ADJ, CARBON 4.7K (SEPARATION)
RV3	1-228-996-00	RES, ADJ, CARBON 47K (AM SEEK STOP SENSITIVITY)
RV4	1-228-996-00	RES, ADJ, CARBON 47K (FM SEEK STOP SENSITIVITY)
RV5	1-226-774-00	RES, ADJ, METAL GLAZE 47K(SOFT-MUTING)
RV101	1-226-703-11	RES, ADJ, METAL GLAZE 10K (REV/L-CH DOLBY NR LEVEL)
RV102	1-226-703-11	RES, ADJ, METAL GLAZE 10K (NOR/L-CH DOLBY NR LEVEL)
RV151	1-226-703-11	RES, ADJ, METAL GLAZE 10K (REV/R-CH DOLBY NR LEVEL)
RV152	1-226-703-11	RES, ADJ, METAL GLAZE 10K (NOR/R-CH DOLBY NR LEVEL)
RV701	1-226-769-00	RES, ADJ, METAL GLAZE 100 (ARI ADJ)

Ref.No.	Part No.	Description
S401	1-570-249-11	SWITCH, LEAF (TAPE-IN)
S402	1-570-250-11	SWITCH, LEAF (TAPE-OUT)
S403	1-570-248-11	SWITCH, SLIDE (FWD/REV)
S500	1-570-204-41	SWITCH, KEY BOARD (1A)
S501	1-570-204-41	SWITCH, KEY BOARD (5E)
S502	1-570-204-41	SWITCH, KEY BOARD (VF-DK)
S503	1-570-204-41	SWITCH, KEY BOARD (LOUD)
S504	1-570-204-41	SWITCH, KEY BOARD (MAN DISC -)
S505	1-570-204-41	SWITCH, KEY BOARD (LEVEL -)
S510	1-570-204-41	SWITCH, KEY BOARD (2B)
S511	1-570-204-41	SWITCH, KEY BOARD (6F)
S512	1-570-204-41	SWITCH, KEY BOARD (FM/AM)
S514	1-570-204-41	SWITCH, KEY BOARD (MAN DISC +)
S515	1-570-204-41	SWITCH, KEY BOARD (LEVEL +)
S520	1-570-204-41	SWITCH, KEY BOARD (3C)
S521	1-570-204-41	SWITCH, KEY BOARD (DOLBY NR)
S522	1-570-204-41	SWITCH, KEY BOARD (PLAY/DIR)
S524	1-570-204-41	SWITCH, KEY BOARD (SEEK TRACK AMS -)
S525	1-570-204-41	SWITCH, KEY BOARD (SELECT)
S530	1-570-204-41	SWITCH, KEY BOARD (4D)
S531	1-570-204-41	SWITCH, KEY BOARD (METAL)
S532	1-570-204-41	SWITCH, KEY BOARD (AUX/CD)
S534	1-570-204-41	SWITCH, KEY BOARD (SEEK TRACK AMS +)
S535	1-570-204-41	SWITCH, KEY BOARD (MEM)
S591	1-570-204-41	SWITCH, KEY BOARD (RESET)
S592	1-570-204-41	SWITCH, KEY BOARD (POWER)
S593	1-570-204-41	SWITCH, KEY BOARD (EJECT)
THP1	1-807-762-11	THERMISTOR, POSITIVE
X1	1-567-250-11	OSCILLATOR, CERAMIC (456kHz)
X601	1-567-170-00	OSCILLATOR, CERAMIC (4.19MHz)
X602	1-567-170-00	OSCILLATOR, CERAMIC (4.19MHz)
X603	1-567-848-11	VIBRATOR, CRYSTAL (7.2MHz)

ACCESSORY & PACKING MATERIAL

2-259-753-00	BAG, PROTECTION
3-325-739-01	SCREW, STEP
3-327-110-01	SCREW, STOPPER
3-348-207-01	PANEL, SIDE
3-566-347-00	COVER (A), CONNECTOR

SECTION 7
TROUBLE CHECKS

The following checks will assist in the correction of most problems which you may encounter with your unit.
Before going through the check list below, first refer back to the connection and operating procedures.

Radio reception

Preset tuning is not possible.	• Memorize the correct frequency. • The broadcast is weak. → Use manual tuning.
Automatic tuning is not possible.	• The broadcast is weak. → Use manual tuning.
The STEREO indicator flickers.	• Tune in precisely. • The broadcast is weak. → Press the MONO button.

Tape playback

Playback sound is distorted.	• Contamination of the tape head. → Clean the head.
The AMS does not operate correctly.	• There is a noise in the space between selections. • A blank space is too short (less than 4 seconds). • FF is pressed immediately before the following selection. • REW is pressed immediately after the selection starts. • A long pause, or a passage of low frequencies or very low sound level is treated as a blank.